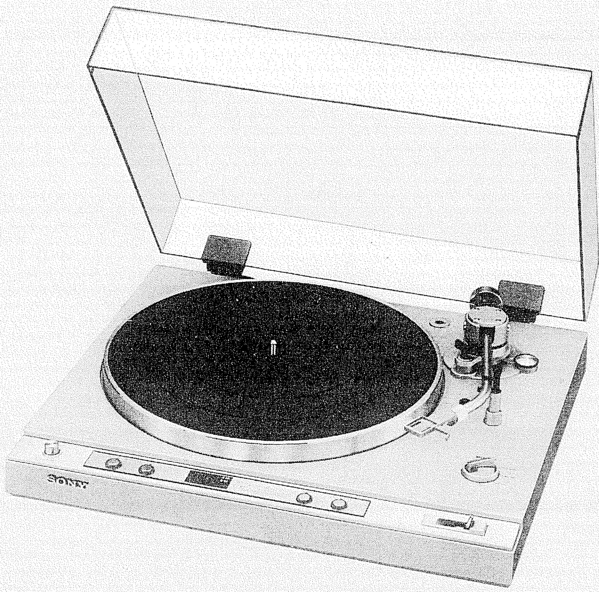
PS-X40

US Model
Canadian Model
AEP Model
UK Model
E Model



AUTOMATIC STEREO TURNTABLE SYSTEM

SPECIFICATIONS

GENERAL

Power Requirements:	120V ac, 60Hz (US, Canadian model) 240V ac, 50Hz (UK model) 120 V, 220 ac adjustable, 50/60 Hz (AEP, E model)
Power Consumption:	8W
Dimensions:	Approx. 445 (w) x 145 (h) x 400 (d) mm (17½ (w) x 5¾ (h) x 15¾ (d) inches) including projecting parts and controls
Weight:	Approx. 8 kg (17 lb 10 oz), net Approx. 9.1 kg (20 lb 2 oz), in shipping carton

SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ !

LES COMPOSANTS IDENTIFIÉS PAR UN TRAMÉ ET UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES, LES VUES EXPLOSÉES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DES SUPPLÉMENTS PUBLIÉS PAR SONY.

TURNTABLE

Platter:	31.4 cm ($12^{3}/_{8}$ inches) dia., aluminum-alloy diecast
Motor:	DC servo-controlled linear BSL motor
Drive System:	Direct drive, crystal lock control system
Speed:	$33^{1}/_{3}$ rpm, 45 rpm Starting characteristics Comes to nominal speed within a half revolution ($33^{1}/_{3}$ rpm)
Wow and Flutter:	±0.045% (DIN) 0.025% (WRMS)
S/N Ratio:	73 dB (DIN-B)
Initial Drift:	Within 0.0003%
Load Characteristics:	0% up to 100 g tracking force
Automatic System:	Lead-in, return, reject, repeat

TONEARM

Type:	Statically balanced, universal
Pivot-to-stylus Length:	216.5 mm (8½ inches)
Overall Arm Length:	300 mm ($11^{7}/_{8}$ inches)
Overhang:	16.5 mm ($^{21}/_{32}$ inches)
Tracking Error:	+3°, −1°
Tracking Force Adjustment Range:	0 − 3 g
Shell Weight:	10.5 g
Cartridge Weight Range:	12−19 g (including shell)

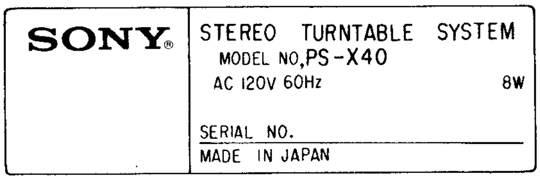
SONY®

SERVICE MANUAL

MODEL IDENTIFICATION

— Specification Label —

US, Canadian model



SONY

STEREO TURNTABLE SYSTEM

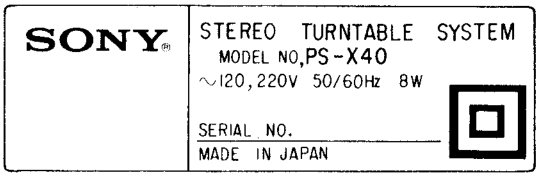
MODEL NO,PS-X40

AC 120V 60Hz 8W

SERIAL NO.

MADE IN JAPAN

AEP, E model



SONY

STEREO TURNTABLE SYSTEM

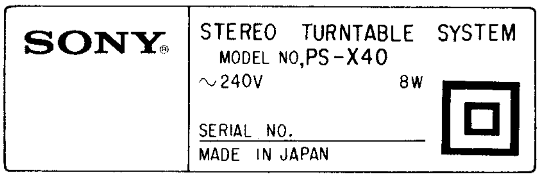
MODEL NO,PS-X40

∼120, 220V 50/60Hz 8W

SERIAL NO.

MADE IN JAPAN

UK model



SONY

STEREO TURNTABLE SYSTEM

MODEL NO,PS-X40

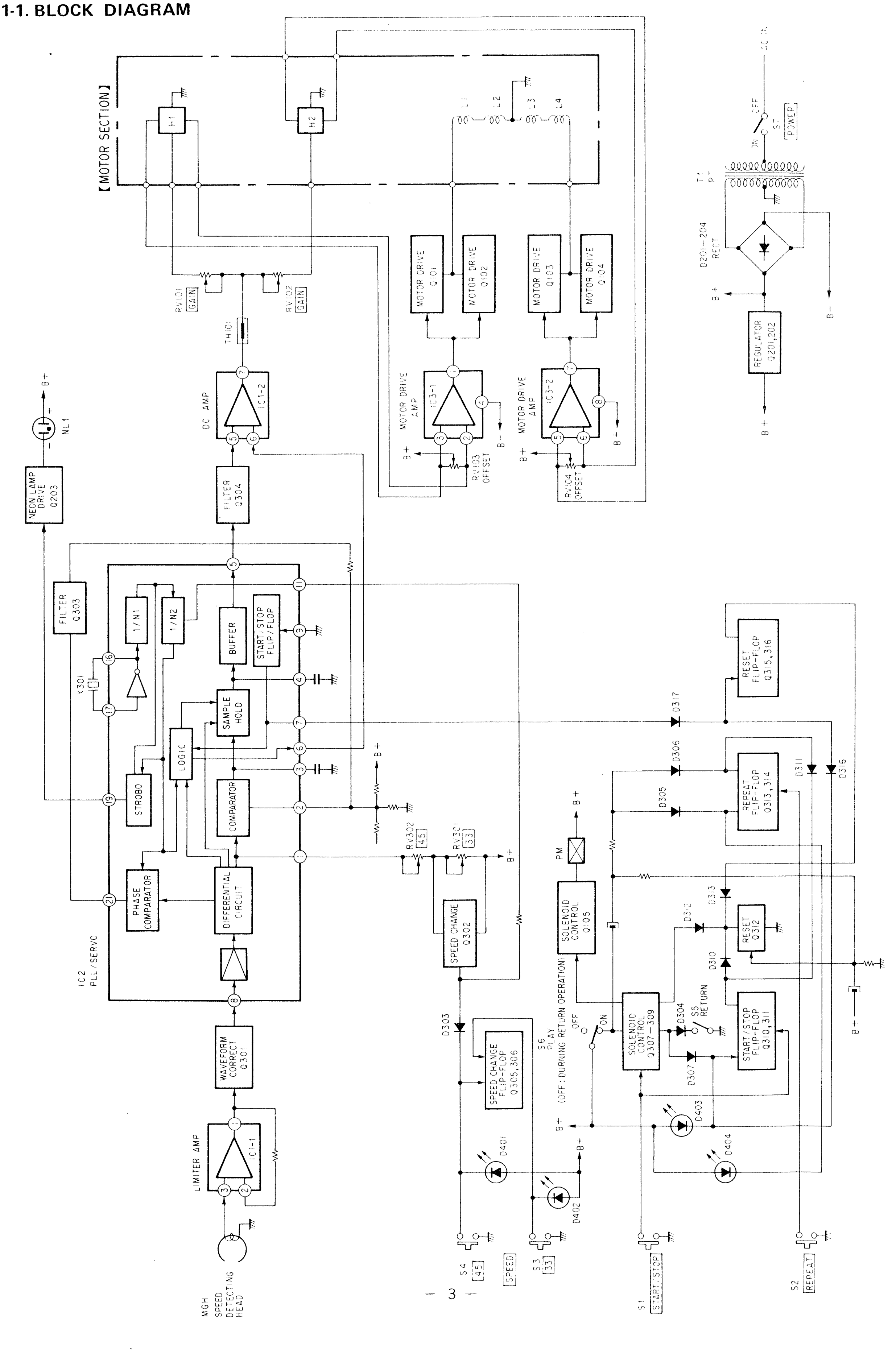
∼240V 8W

SERIAL NO.

MADE IN JAPAN

SECTION 1
OUTLINE

1-1. BLOCK DIAGRAM

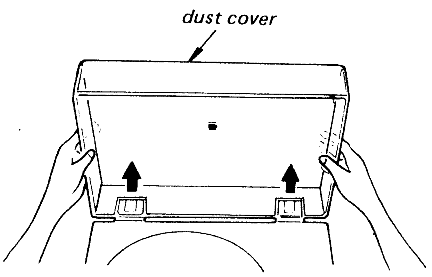

MOTOR SECTION
H1
H2
L1
L2
L3
L4
RV101 GAIN
RV102 GAIN
TH101
DC AMP
IC1-2
MOTOR DRIVE Q101
MOTOR DRIVE Q102
MOTOR DRIVE Q103
MOTOR DRIVE Q104
MOTOR DRIVE AMP IC3-1
MOTOR DRIVE AMP IC3-2
RV103 OFFSET
RV104 OFFSET
B+
B−
AC IN
S7 POWER
ON
OFF
T1 PT
D201−204 RECT
REGULATOR Q201,202
NL1
NEON LAMP DRIVE Q203
FILTER Q304
FILTER Q303
X301
1/N1
1/N2
BUFFER
START/STOP FLIP/FLOP
SAMPLE HOLD
LOGIC
STROBO
COMPARATOR
PHASE COMPARATOR
DIFFERENTIAL CIRCUIT
IC2 PLL/SERVO
WAVEFORM CORRECT Q301
LIMITER AMP
IC1-1
MGH SPEED DETECTING HEAD
RV302 45
RV301 33
SPEED CHANGE Q302
D303
SPEED CHANGE FLIP-FLOP Q305,306
D401
D402
S4 45
S3 33
SPEED
RESET FLIP-FLOP Q315,316
REPEAT FLIP-FLOP Q313,314
D317
D306
D305
D311
D316
PM
SOLENOID CONTROL Q105
SOLENOID CONTROL Q307−309
RESET Q312
D312
D313
D310
S6 PLAY (OFF: DURNING RETURN OPERATION)
D304
S5 RETURN
D307
START/STOP FLIP-FLOP Q310,311
D403
D404
S1 START/STOP
S2 REPEAT

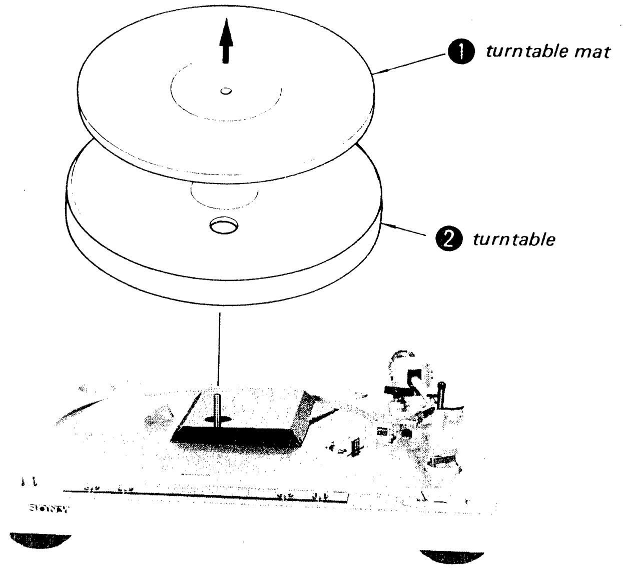
SECTION 2
DISASSEMBLY

2-1. REMOVAL

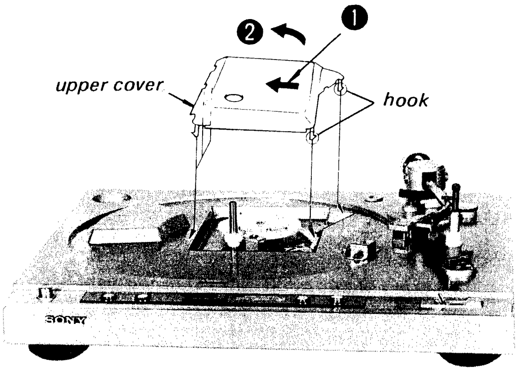
- Follow the disassembly or installation procedure in the numerical order given.

Dust Cover and Turntable Removal



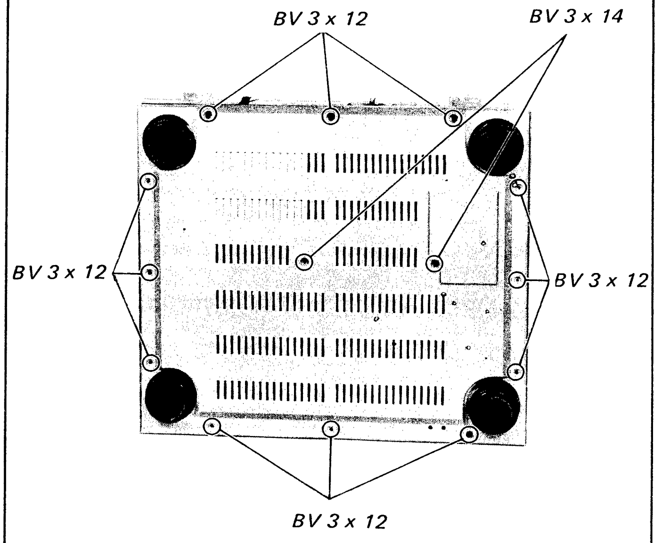

❶ turntable mat
❷ turntable

Upper Cover Removal

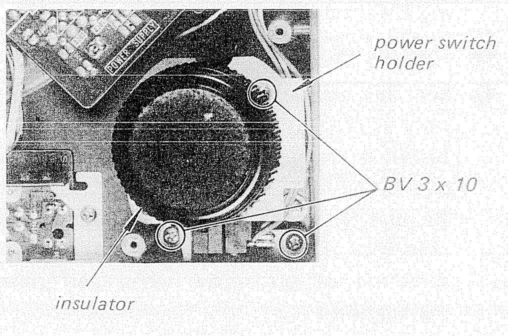

❷
❶
upper cover
hook

1. Press the upper cover in the direction of the arrow❶and unhook the two hooks on the right.
2. Push up the upper cover in the direction of the arrow ❷.

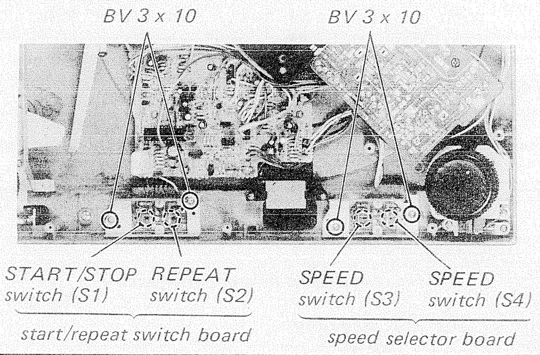
Bottom Plate Removal


BV 3 x 12
BV 3 x 14
BV 3 x 12
BV 3 x 12
BV 3 x 12

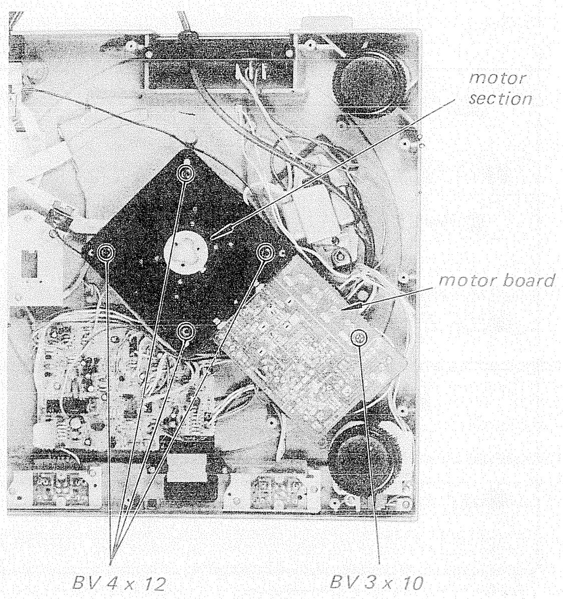
POWER Switch (S7) Removal


power switch holder
BV 3 x 10
insulator

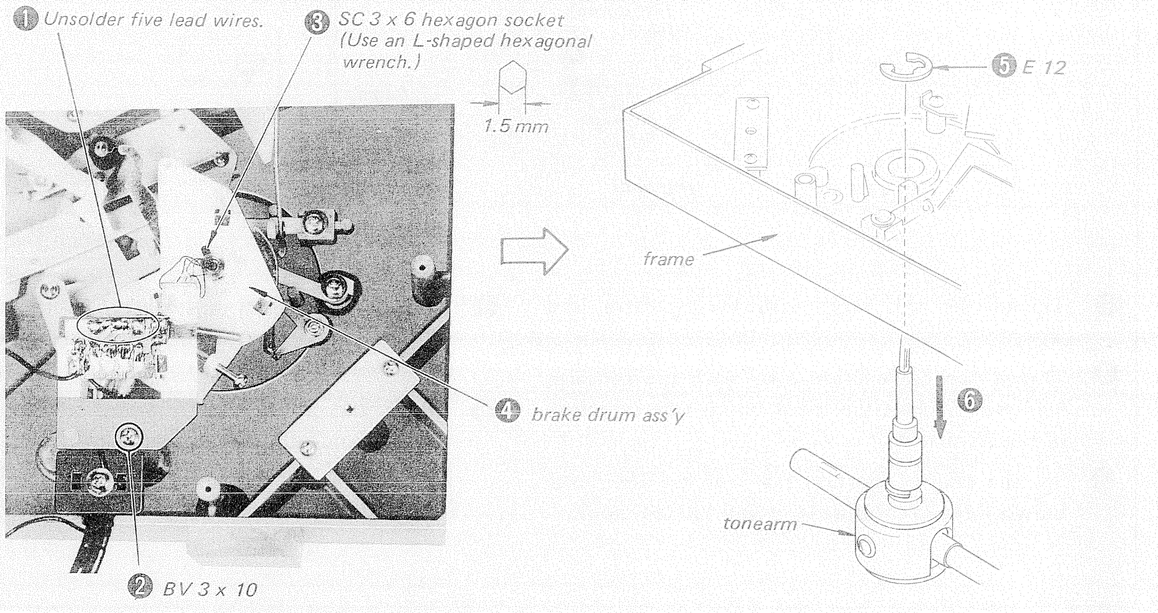
Start/Repeat Switch Board and Speed Selector Board Removal


BV 3 x 10
BV 3 x 10
START/STOP switch (S1)
REPEAT switch (S2)
SPEED switch (S3)
SPEED switch (S4)
start/repeat switch board
speed selector board

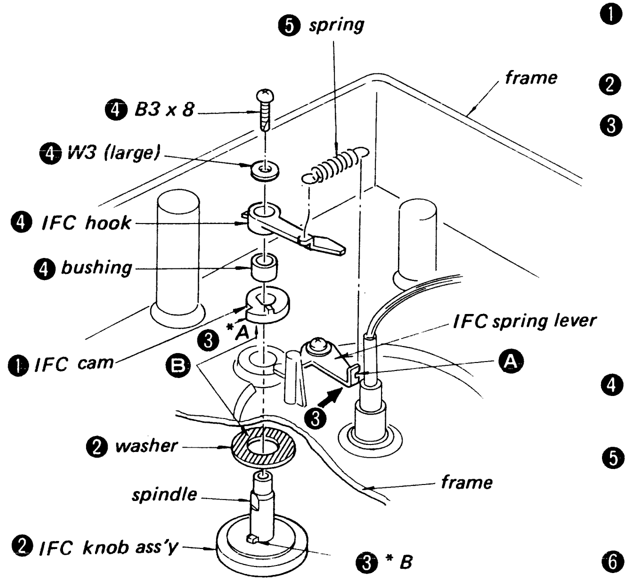
Motor and Motor Section Removal


motor section
motor board
BV 4 x 12
BV 3 x 10

Tonearm Removal


① Unsolder five lead wires.
③ SC 3 x 6 hexagon socket (Use an L-shaped hexagonal wrench.)
1.5 mm
④ brake drum ass'y
② BV 3 x 10
⑤ E 12
frame
⑥
tonearm

IFC Knob Assembly Installation


⑤ spring
frame
④ B3 x 8
④ W3 (large)
④ IFC hook
④ bushing
③ *A
① IFC cam
Ⓑ
IFC spring lever
Ⓐ
③
② washer
spindle
frame
② IFC knob ass'y
③ *B

① Smear the shaded portion Ⓑ of the washer and the IFC cam with grease.

② Install a washer in the IFC knob ass'y.

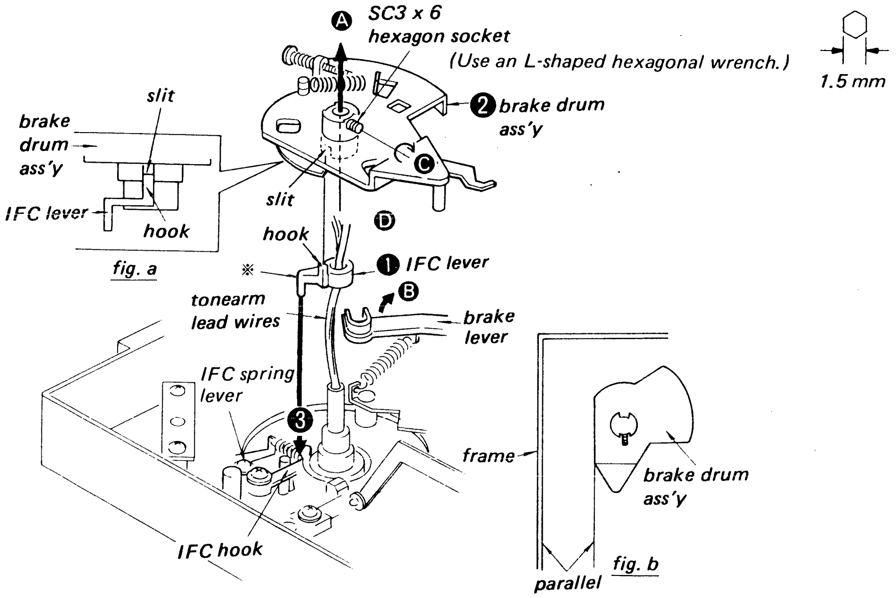
③ Set the marked point (*B) of the IFC knob ass'y as shown.
Install it through the frame and install the IFC cam in the IFC knob ass'y.
Be sure that the two marked points (*A & *B) coincide. (Place the IFC spring lever in the direction of the arrow when performing this installation.)

④ Place the bushing, IFC hook and washer (W3) on the spindle and fasten them with screw B3 x 8.

⑤ Connect the IFC hook and the IFC spring lever with a spring and apply suitable locking compound at point Ⓐ of the lever.

⑥ After the installation has been completed, be sure that the IFC hook moves on its own.

Brake Drum Installation


Ⓐ SC3 x 6
hexagon socket
(Use an L-shaped hexagonal wrench.)
1.5 mm
② brake drum ass'y
Ⓒ
slit
brake drum ass'y
IFC lever
hook
fig. a
slit
hook
Ⓓ
※
① IFC lever
Ⓑ
tonearm lead wires
brake lever
IFC spring lever
③
frame
brake drum ass'y
IFC hook
fig. b
parallel

① Thread the IFC lever with the tonearm lead wires.

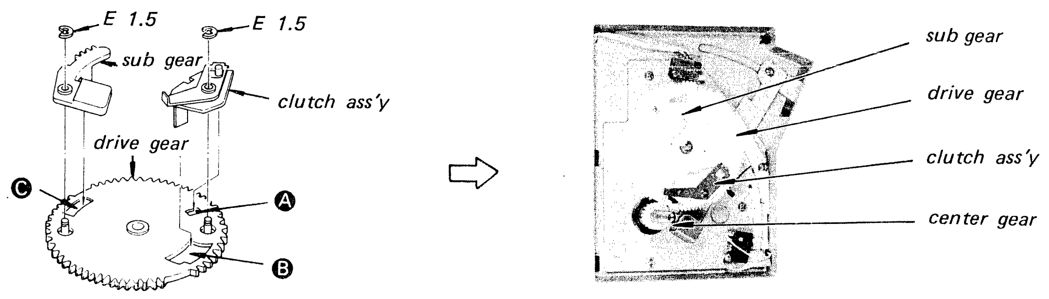
② Thread the brake drum ass'y with the tonearm lead wires. Pull the wires out in the direction of the arrow Ⓐ .

③ Set the marked portion (※) of the IFC lever between the IFC spring lever and the IFC hook.

④ Push the brake lever in the direction of the arrow Ⓑ and match the slitted part with the hook of the IFC lever. (See fig. a)

⑤ Adjust the position of the drum so that the straight side of drum is parallel with the frame (See fig. b). Fix the drum by turning the set screw (SC3 x 6) in the direction of the arrow Ⓒ .

Sub Gear and Clutch Ass'y Installation


E 1.5
E 1.5
sub gear
clutch ass'y
drive gear
Ⓒ
Ⓐ
Ⓑ
sub gear
drive gear
clutch ass'y
center gear

❶ Set the pawl of the sub gear in hole Ⓒ and fasten the sub gear with E1.5.

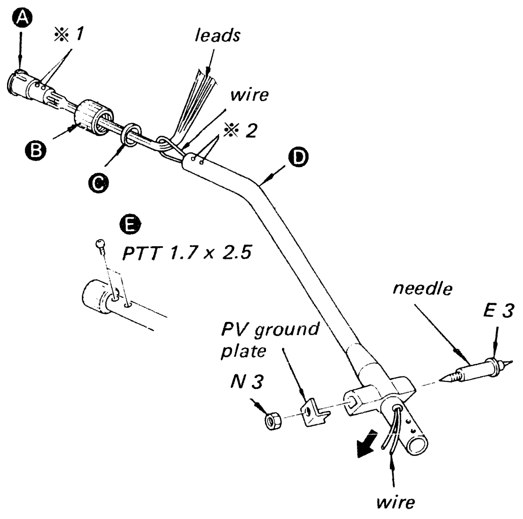
❷ Set the pawls of the clutch ass'y in holes Ⓐ and Ⓑ and fasten the clutch ass'y with E1.5.

❸ After installation has been completed, make sure that they move on their own.

TONEARM INSTALLATION

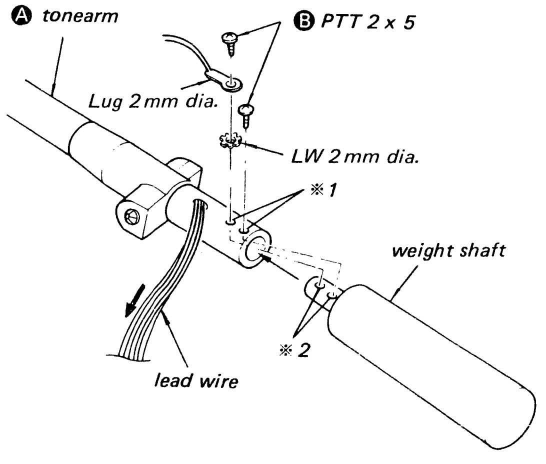
1. Pipe Assembly (1)

1. Thread a wire in Ⓓ .
2. Thread the leads of Ⓐ in Ⓑ and Ⓒ , and hook the leads by the wire.
3. Insert Ⓐ in Ⓓ by pulling the wire in the direction of the arrow, adjust two holes marked ※ 1 and ※ 2 to tighten the screws Ⓔ.


Ⓐ
※ 1
leads
wire
※ 2
Ⓑ
Ⓓ
Ⓒ
Ⓔ
PTT 1.7 x 2.5
needle
E 3
PV ground plate
N 3
wire

2. Pipe Assembly (2)

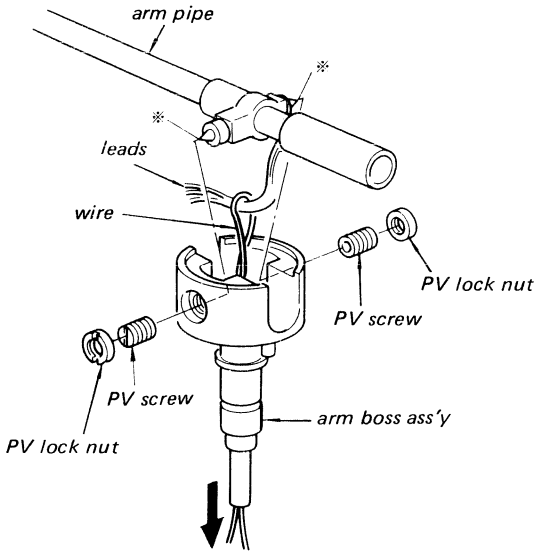
1. Hook the leads together by the wire and pull the leads into Ⓐ in the direction of arrow.
2. Adjust the two holes marked ※1 and ※2 to tighten the two screws Ⓑ .


Ⓐ tonearm
Ⓑ PTT 2 x 5
Lug 2 mm dia.
LW 2 mm dia.
※ 1
weight shaft
※ 2
lead wire

3. Arm Boss Ass'y Installation

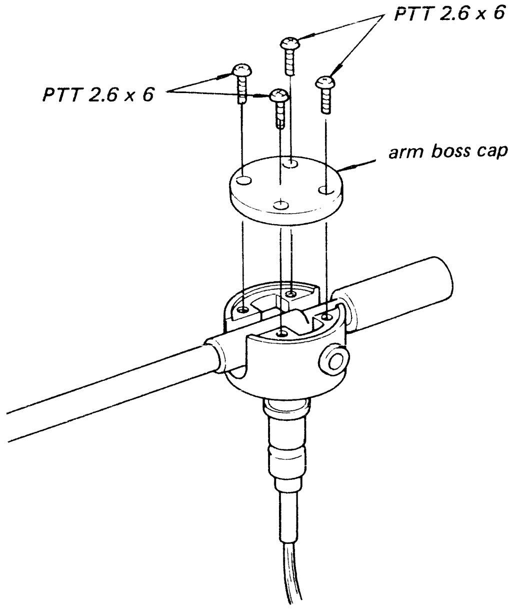
1. Thread the wire in arm boss ass'y.
2. Hook the five leads by the wire.
3. Pull the wire in the direction of arrow.
4. Tighten the pivot screw and the lock nut temporarily.

Note: Confirm that the portions marked ※ of the tornarm pipe are positioned to the center of the screw hole.


arm pipe
※
※
leads
wire
PV lock nut
PV screw
PV screw
arm boss ass'y
PV lock nut

4. Arm Boss Cap Installation

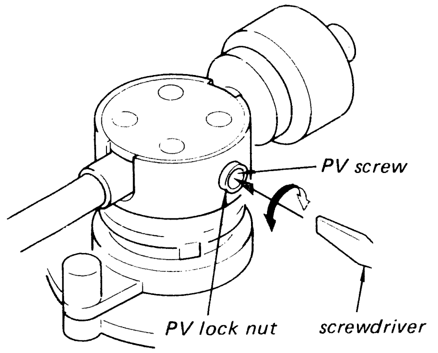
1. Install the arm boss cap with four screws.
2. Install the tornarm to the frame.

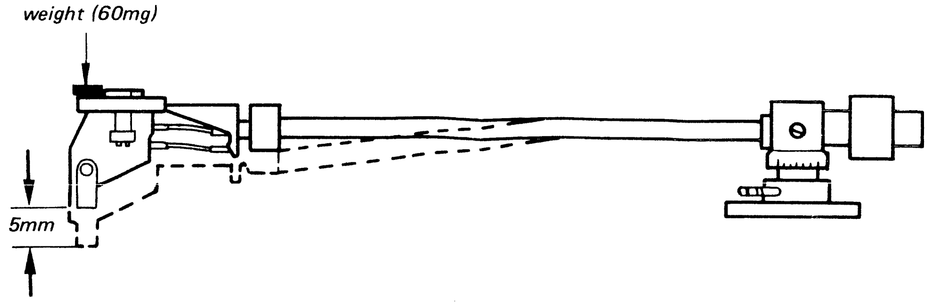

PTT 2.6 x 6
PTT 2.6 x 6
arm boss cap

5. Longitudinal Sensitivity Adjustment

1. Make the longitudinal balance adjustment of tonearm.
2. Repeating the following procedures, adjust the pivot screw and the lock nut.
   a. When the 60 mg weight is placed on the top of the shell, the tonearm sinks 5 mm (measured at stylus-tip.)
   b. When the weight is removed, the tonearm returns horizontally.

Note: Rotate the left and right pivot screws by same numbers of turns.


PV screw
PV lock nut
screwdriver


weight (60mg)
5mm

MOTOR INSTALLATION

The motor and the servo amp board are assembled together. If found defective, disassemble the motor block as shown in Fig. A and repair it.

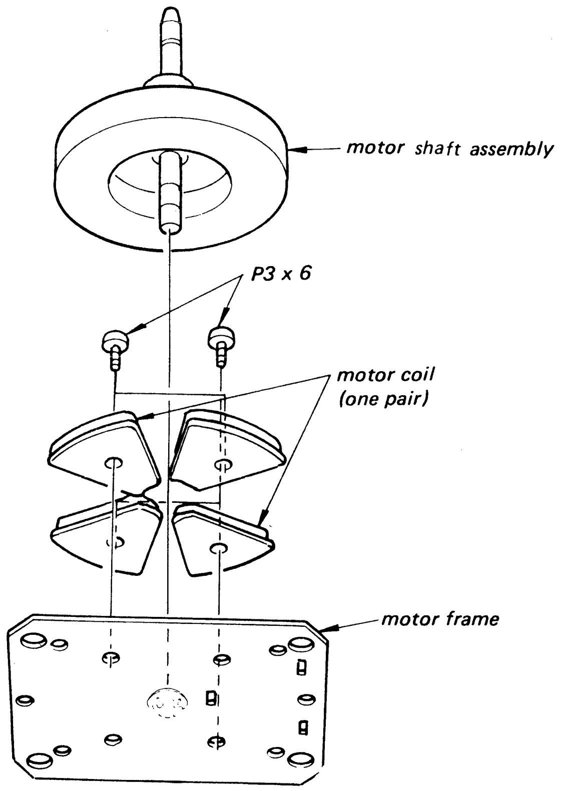
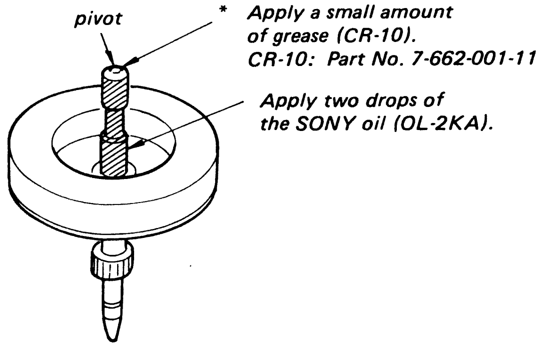


Fig. A

1. When the motor shaft is replaced, apply grease to the pivot and apply two drops of the SONY oil (OL-2KA) to the parts marked by * in Fig. B

2. When the motor bearing and the thrust retainer plate are replaced, apply grease to the pivot.



* *Apply a small amount of grease (CR-10).*
CR-10: Part No. 7-662-001-11

Apply two drops of the SONY oil (OL-2KA).

Fig. B

3. Insert the motor shaft assembly slowly in the motor bearing so that the motor shaft is not attracted by strong magnetic field strength.

4. The motor coils are composed of two pairs.
   a). Mount the coils on the motor frame so that the boss of the coil is placed in the hole of the frame as illustrated in Fig. C.
   b). Push the coils in the arrowed direction and tighten the screws.
   c). Lay the leads of the coils as shown in Fig. D and fix the leads in the slot between the portions marked by *in Fig. E.

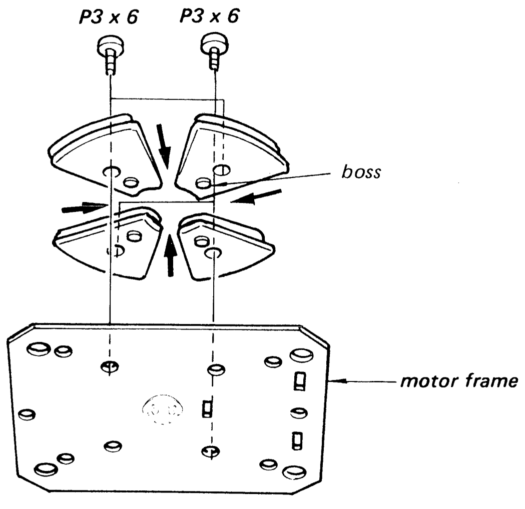


Fig. C

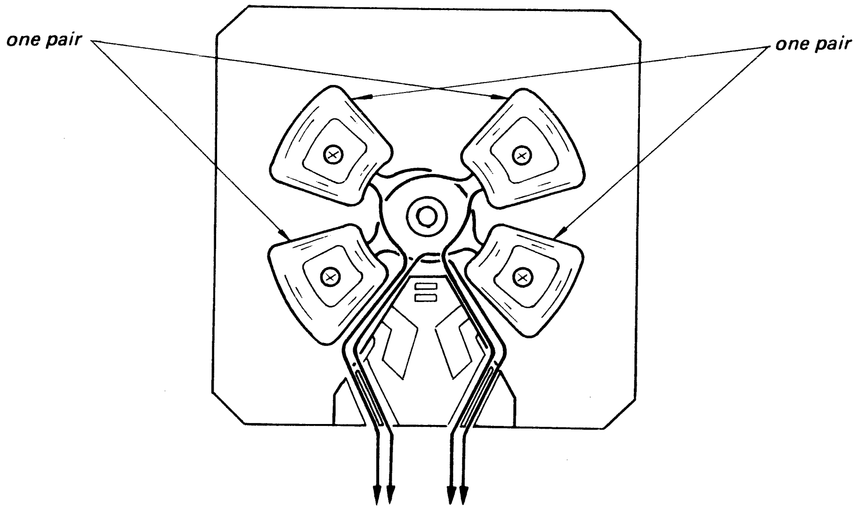


Fig. D

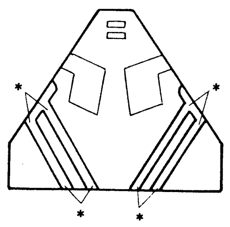
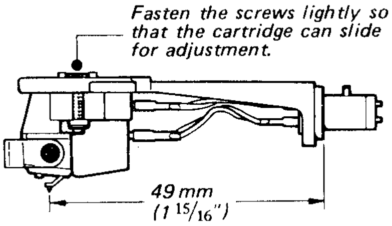


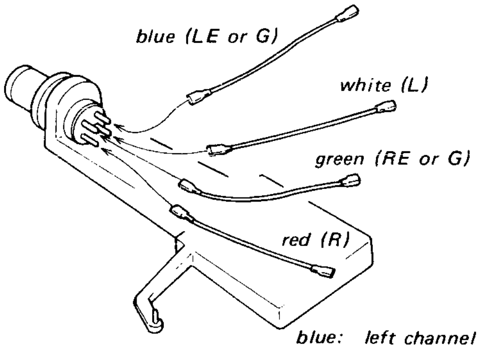
Fig. E

CARTRIDGE INSTALLATION

Install the cartridge into the shell with the mounting screws so that the distance between the shell end and the stylus tip is 49 mm (1 15/16 inches).


Fasten the screws lightly so that the cartridge can slide for adjustment.
49 mm
(1 15/16")

LEAD WIRE CONNECTION


blue (LE or G)
white (L)
green (RE or G)
red (R)

blue: left channel (ground)
white: left channel (signal)
green: right channel (ground)
red: right channel (signal)

SECTION 3

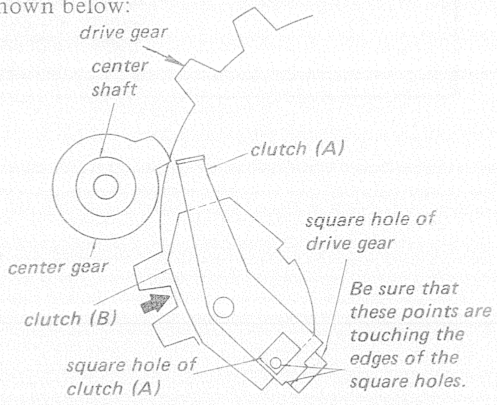
ADJUSTMENTS

3-1 MECHANICAL ADJUSTMENTS

Automatic Return Position Adjustment

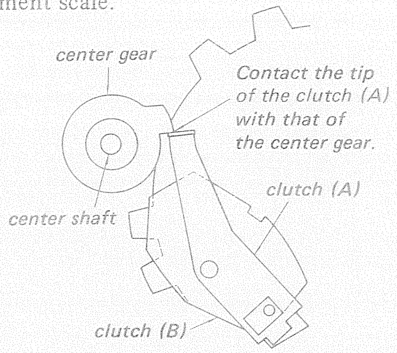
- Unplug the power cord.

1. Remove the turntable mat and turntable.
2. Put the tonearm on the arm rest.
3. Turn the center shaft clockwise by hand and turn the drive gear one turn by engaging the center gear with the drive gear. Then place the drive gear in the disengaging position.
4. Push the clutch (B) in the direction of the arrow and place the clutch (A) and cluth (B) as shown below:

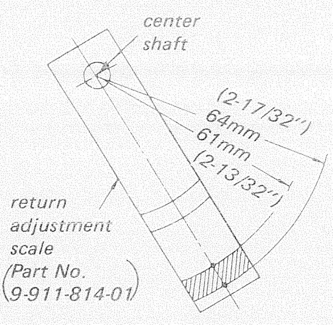

drive gear
center shaft
clutch (A)
square hole of drive gear
center gear
clutch (B)
square hole of clutch (A)

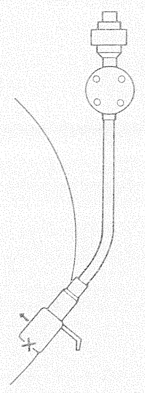
Be sure that these points are touching the edges of the square holes.

5. Put the return adjustment scale (Part No. 9-911-814-01) on the center shaft.
6. Move the tonearm toward the center shaft by hand so that the clutch (A) is positioned as shown below and confirm that the stylus is located on the hatched area of the return adjustment scale.


center gear
clutch (A)
center shaft
clutch (B)

Contact the tip of the clutch (A) with that of the center gear.

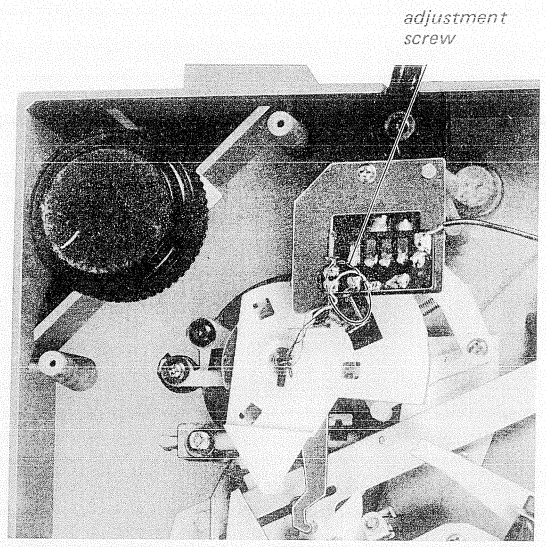

center shaft
(2-17/32")
64mm
61mm
(2-13/32")
return adjustment scale
(Part No. 9-911-814-01)

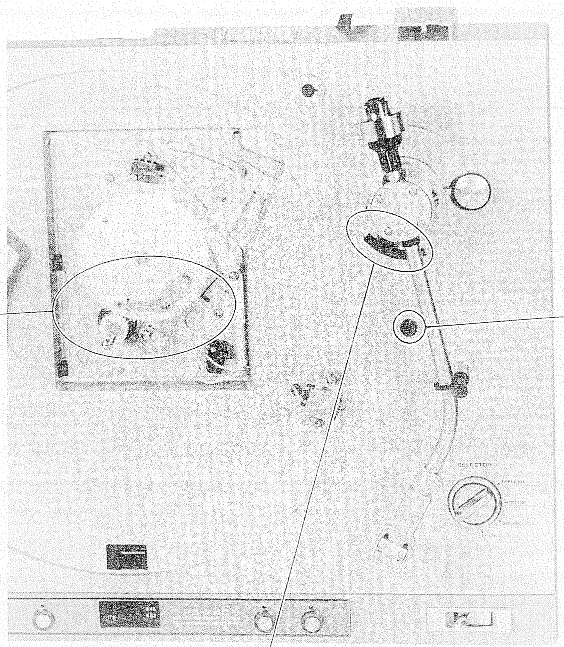


7. If necessary, adjust the adjustment screw.

Stylus Position	Adjustment Screw
outside of hatched area	clockwise
inside of hatched area	counterclockwise
on hatched area	correct

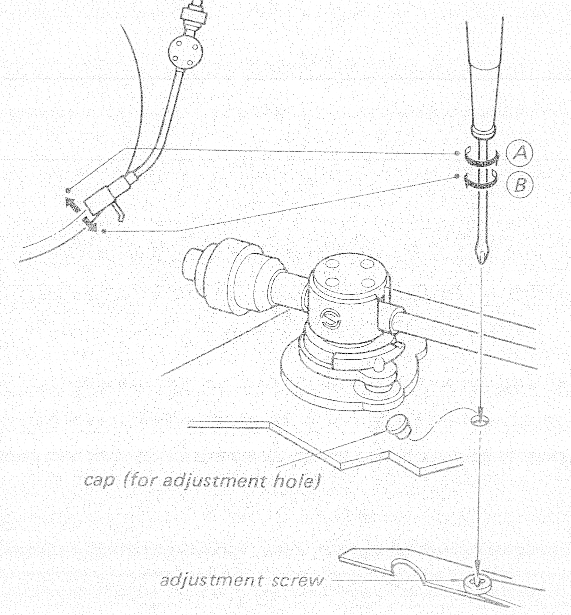
8. Play the automatic-return test record (YFSC-16, A side "C-3") and confirm that the tonearm returns at count 4 to 11.


adjustment screw



Stylus Drop-point Adjustment

- Remove the cap from the adjustment hole.


Ⓐ
Ⓑ
cap (for adjustment hole)
adjustment screw

1. Set the record size selector lever to the 30 (12") position and make sure that the stylus gets down on the specified point of the test record.

   test record: YFSC-16

Record size selector lever position	Count of drop-point
30 (12")	4 to 16
25 (10")	6 to 24
17 (7")	7 to 25

2. If necessary, insert the screwdriver into the hole and adjust the drop-point by turning the adjustment screw.

   To change the drop-point inward:
   Turn the adjustment screw slightly counterclockwise Ⓐ.

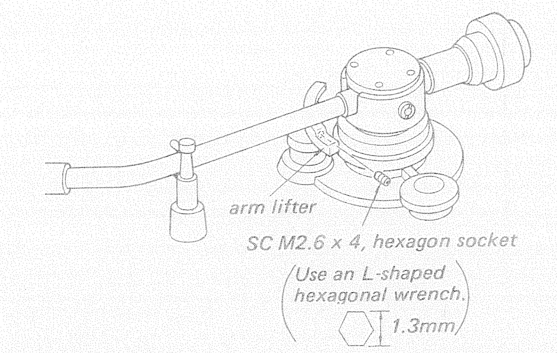
   To change the drop-point outward:
   Turn the adjustment screw slightly clockwise Ⓑ.

3. Once it is properly adjusted with a 30 cm (12") record, the drop-point will be correct for 17 cm (7") and 25 cm (10") records as well.

Note: The stylus drop-point is changed to about 12 mm (½") by one turn of the adjustment screw.

Arm Lifter Height Adjustment

- Unplug the power cord.

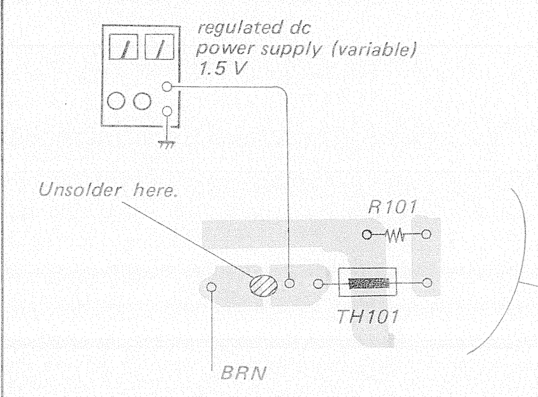

arm lifter
SC M2.6 x 4, hexagon socket
(Use an L-shaped hexagonal wrench.)
1.3mm

The clearance between the stylus tip and the record on the rubber mat should be 7–11mm (5/16–7/16").

3-2. ELECTRICAL ADJUSTMENTS

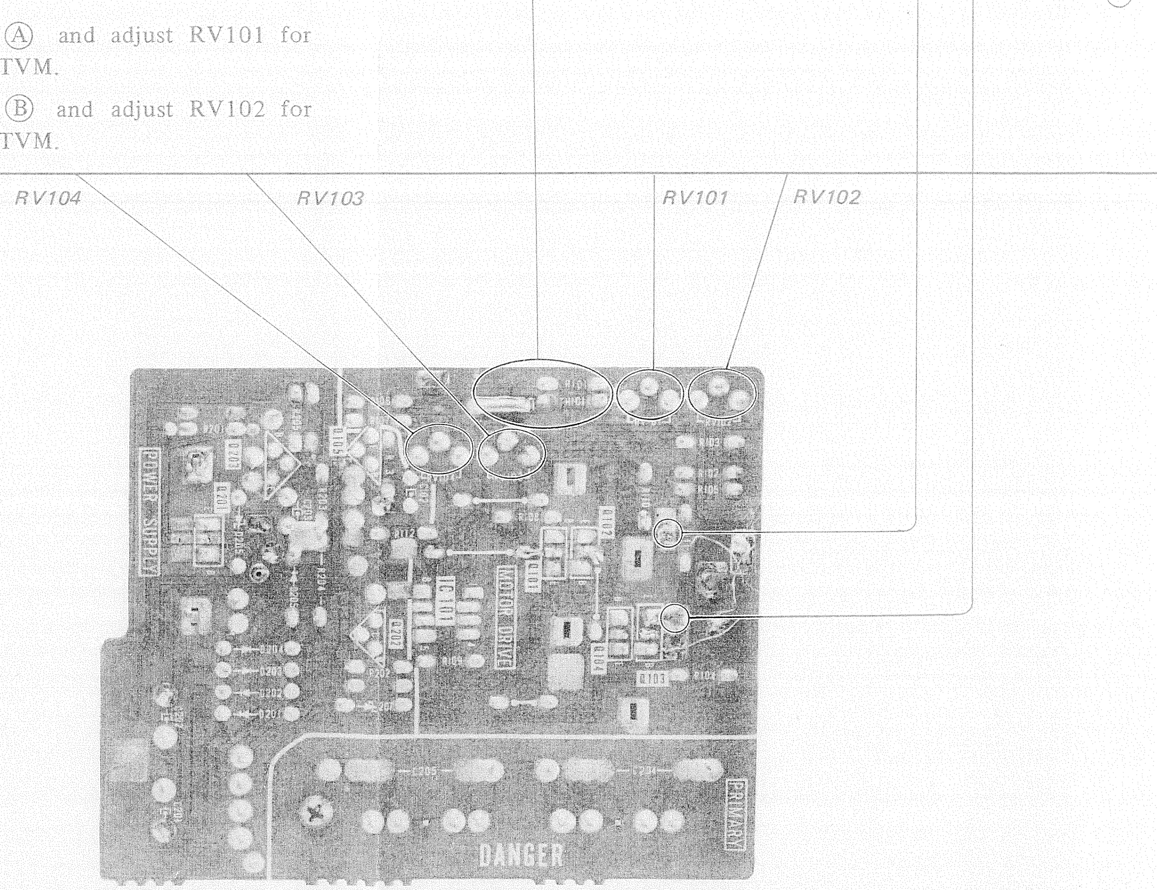
Hall Device Gain/Offset Adjustment (33 rpm)

1. Unsolder the bridged portion on the pattern and connect the regulated power supply (1.5 V dc) as shown.


regulated dc power supply (variable) 1.5 V
Unsolder here.
R101
TH101
BRN

2. Connect VTVM to Ⓐ and adjust RV101 for 1.9 V ac reading on VTVM.
3. Connect VTVM to Ⓑ and adjust RV102 for 1.9 V ac reading on VTVM.
4. Connect an oscilloscope to Ⓐ and adjust RV103 for the specified waveform as shown.
5. Connect an oscilloscope to Ⓑ and adjust RV104 for the specified waveform as shown.

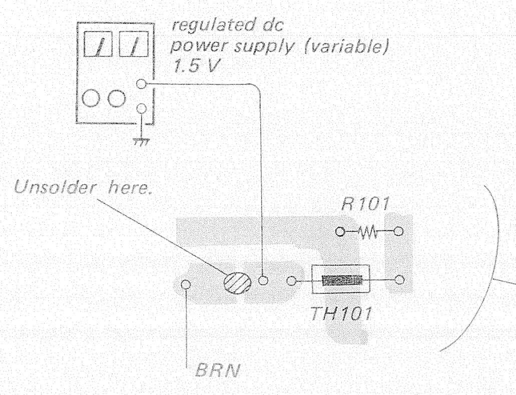
Note: When the VTVM is used instead of an oscilloscope, connect the VTVM and the measuring circuit as shown and adjust RV103 and RV104 for 0 V dc on the VTVM.


Ⓑ
Ⓐ
RV104
RV103
RV101
RV102
POWER SUPPLY
MOTOR DRIVE
PRIMARY
DANGER

3-2. ELECTRICAL ADJUSTMENTS

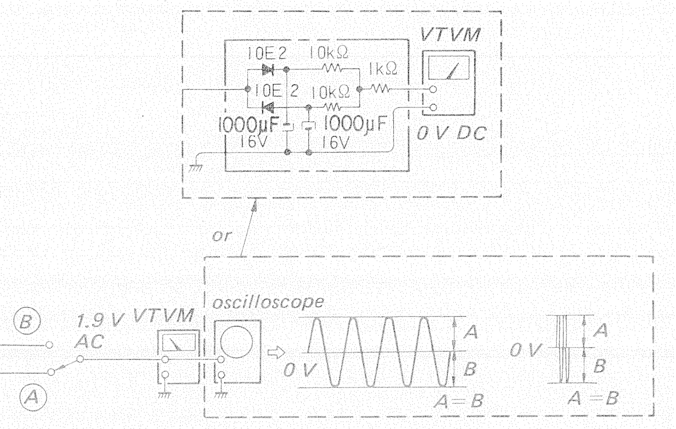
Hall Device Gain/Offset Adjustment (33 rpm)

1. Unsolder the bridged portion on the pattern and connect the regulated power supply (1.5 V dc) as shown.

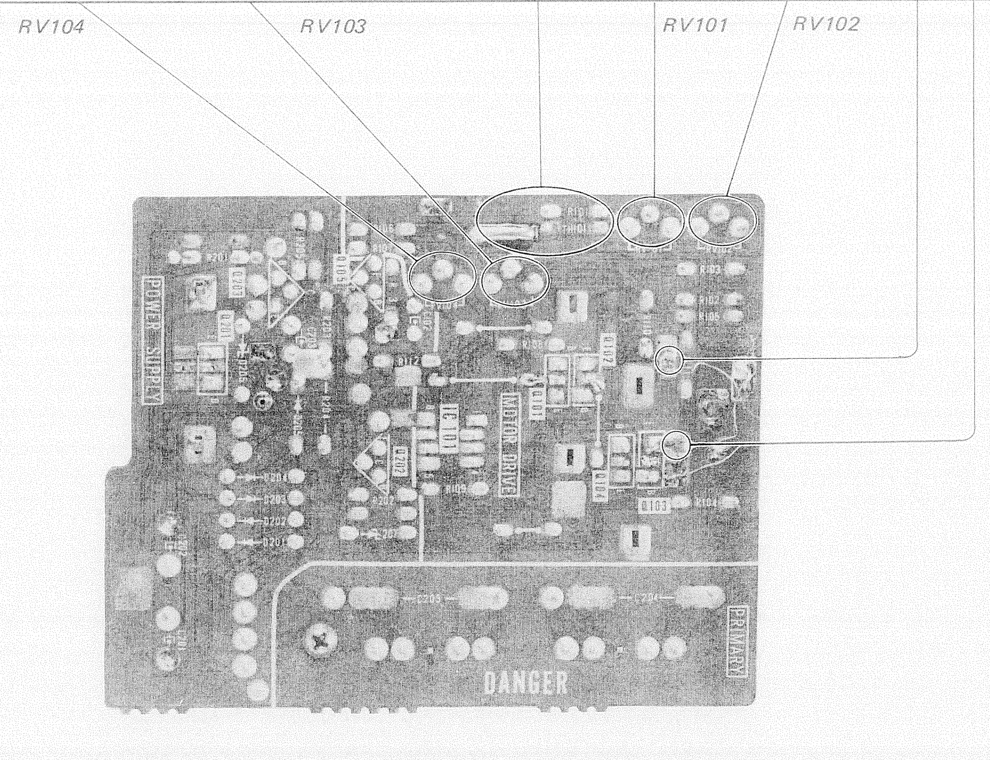

regulated dc
power supply (variable)
1.5 V
Unsolder here.
R101
TH101
BRN

2. Connect VTVM to Ⓐ and adjust RV101 for 1.9 V ac reading on VTVM.
3. Connect VTVM to Ⓑ and adjust RV102 for 1.9 V ac reading on VTVM.
4. Connect an oscilloscope to Ⓐ and adjust RV103 for the specified waveform as shown.
5. Connect an oscilloscope to Ⓑ and adjust RV104 for the specified waveform as shown.

Note: When the VTVM is used instead of an oscilloscope, connect the VTVM and the measuring circuit as shown and adjust RV103 and RV104 for 0 V dc on the VTVM.

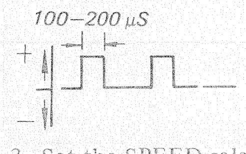

10E2
10kΩ
1kΩ
10E 2
10kΩ
1000μF
16V
1000μF
16V
VTVM
0 V DC
or
Ⓑ
Ⓐ
1.9 V VTVM
AC
oscilloscope
0 V
A
B
A=B
0 V
A
B
A=B

Note: Set the sweep time longer as for easy waveform checking.


RV104
RV103
RV101
RV102
POWER SUPPLY
MOTOR DRIVE
IC101
PRIMARY
DANGER

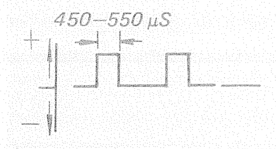
Speed Adjustment

1. Set the SPEED selector switch to 45 rpm.
2. Adjust RV302 for specified waveform as shown on the oscilloscope.

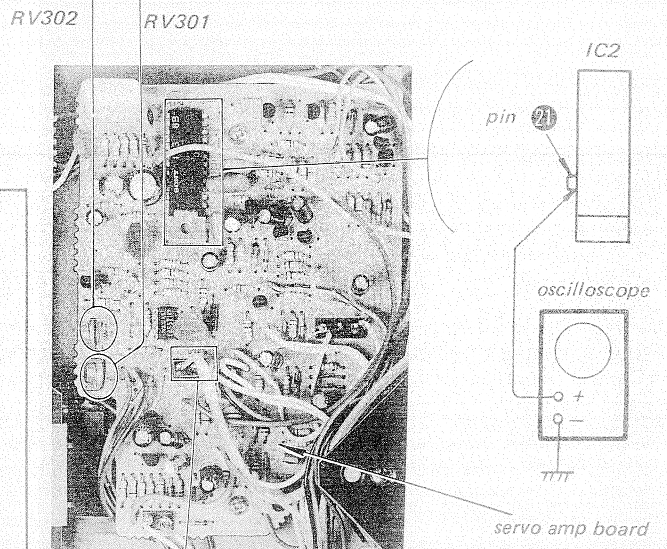


Note: The waveform should appear to positive side.

3. Set the SPEED selector switch to 33 rpm.
4. Adjust RV301 for specified waveform as shown on the oscilloscope.



Note: The waveform should appear to positive side.


RV302
RV301
IC2
pin ㉑
oscilloscope
+
–
servo amp board

Speed-Detecting Head Output Adjustment

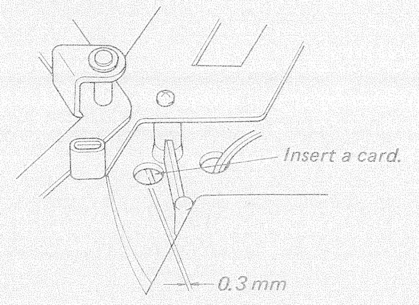
1. Adjust the position of the speed-detecting head by loosening the two screws (TA, B 3 x 10) as shown in the photograph so that the VTVM reading is more than 20 mV ac at 33 rpm.
2. Make sure that the head does not touch the turntable and tighten the screws securely.

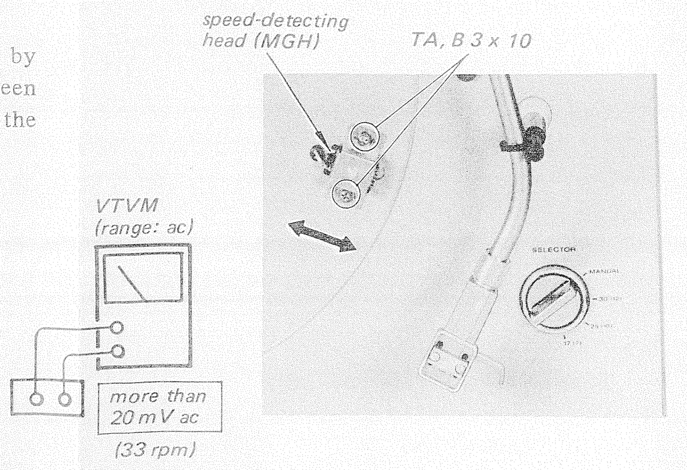
Note:

- Maladjustment results in wow-flutter.
- The clearance between the magnet-coated rim and the speed-detecting head is more than 0.3 mm.

Reference:

Adjust the position of the speed-detecting head by inserting a card (approx. 0.3 mm thick) between the magnetic coating of the turntable and the speed-detecting head.


Insert a card.
0.3 mm


speed-detecting
head (MGH)
TA, B 3 x 10
VTVM
(range: ac)
more than
20 mV ac
(33 rpm)
SELECTOR

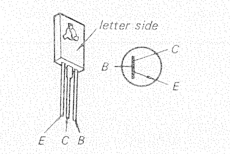
SECTION 4

DIAGRAMS

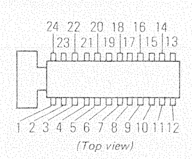
4-1. MOUNTING DIAGRAM *– Conductor Side –*

- **Replacement Semiconductors**
  For replacement, use semiconductors except in ( ).

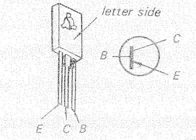
Q101, 103, 201: 2SD414


letter side
B
C
E
E C B

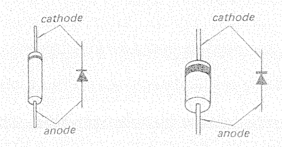
IC2: CX193


24 22 20 18 16 14
23 21 19 17 15 13
1 2 3 4 5 6 7 8 9 10 11 12
(Top view)

Q102, 104: 2SB548R

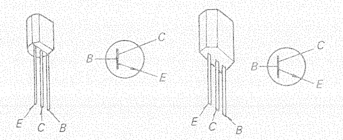

letter side
B
C
E
E C B

D201 — 204: 10E2 (GP08B)

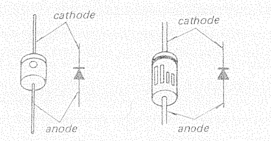

cathode
anode
cathode
anode

Q105, 202, 301,
Q303 – 316):

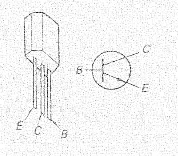
2SC1364 (2SC945)


B
C
E
E C B
B
C
E
E C B

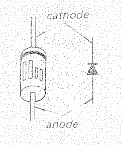
D205: 10D6 (SIB01–06)


cathode
anode
cathode
anode

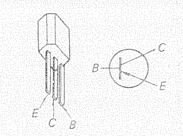
Q203: 2SC926A



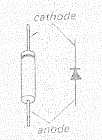
D206: EQB01-10 (EQA01-10R)
D207: EQB01-33 (EQA01-33R)


cathode
anode

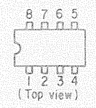
Q302: 2SA678 (2SA844)



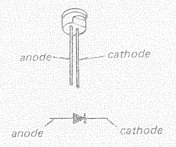
D301 — 317: 1S1555


cathode
anode

IC1: μPC4557C
IC3: μPC4558C

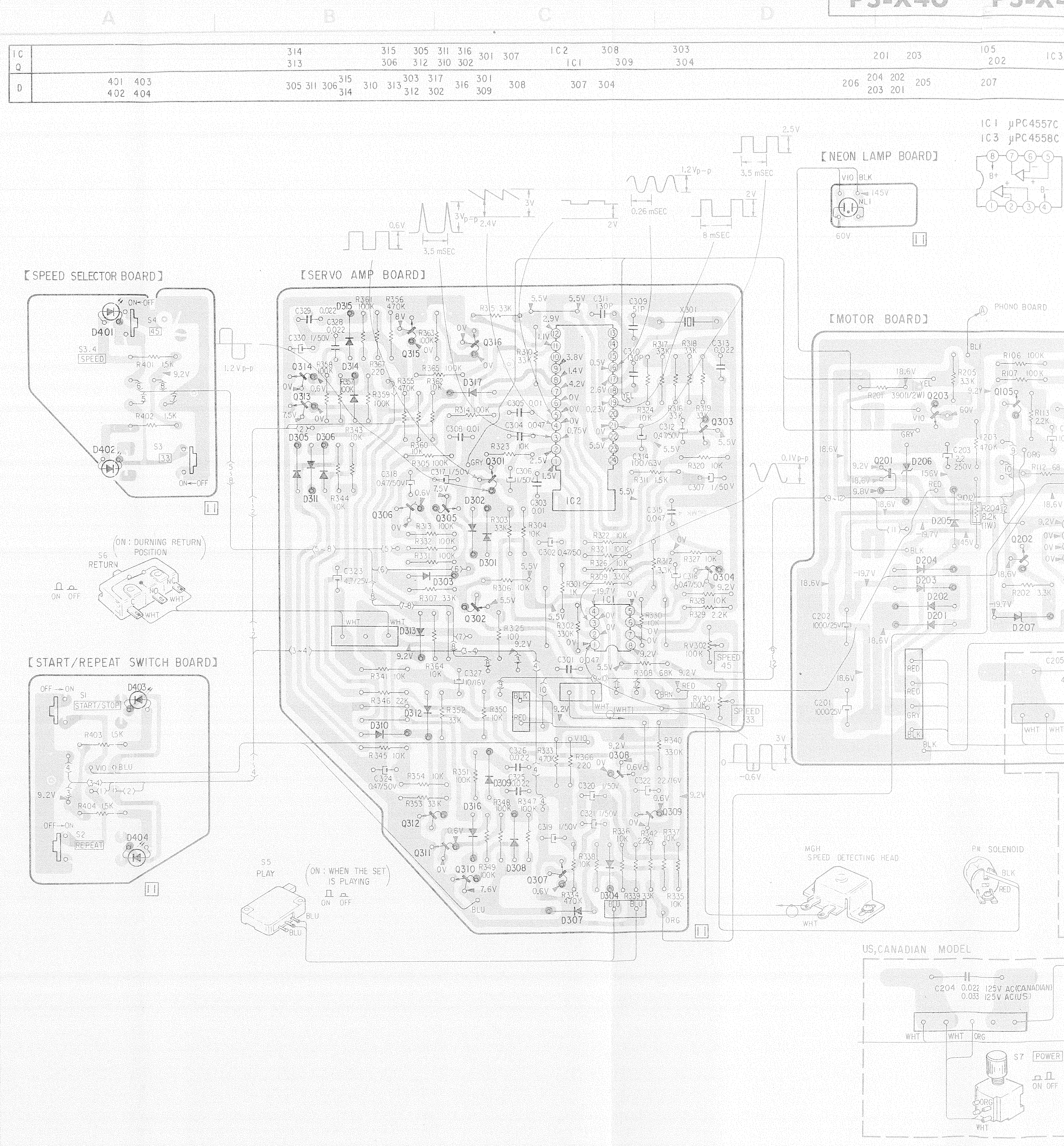

8 7 6 5
1 2 3 4
(Top view)

D401 — 404: SLP24B

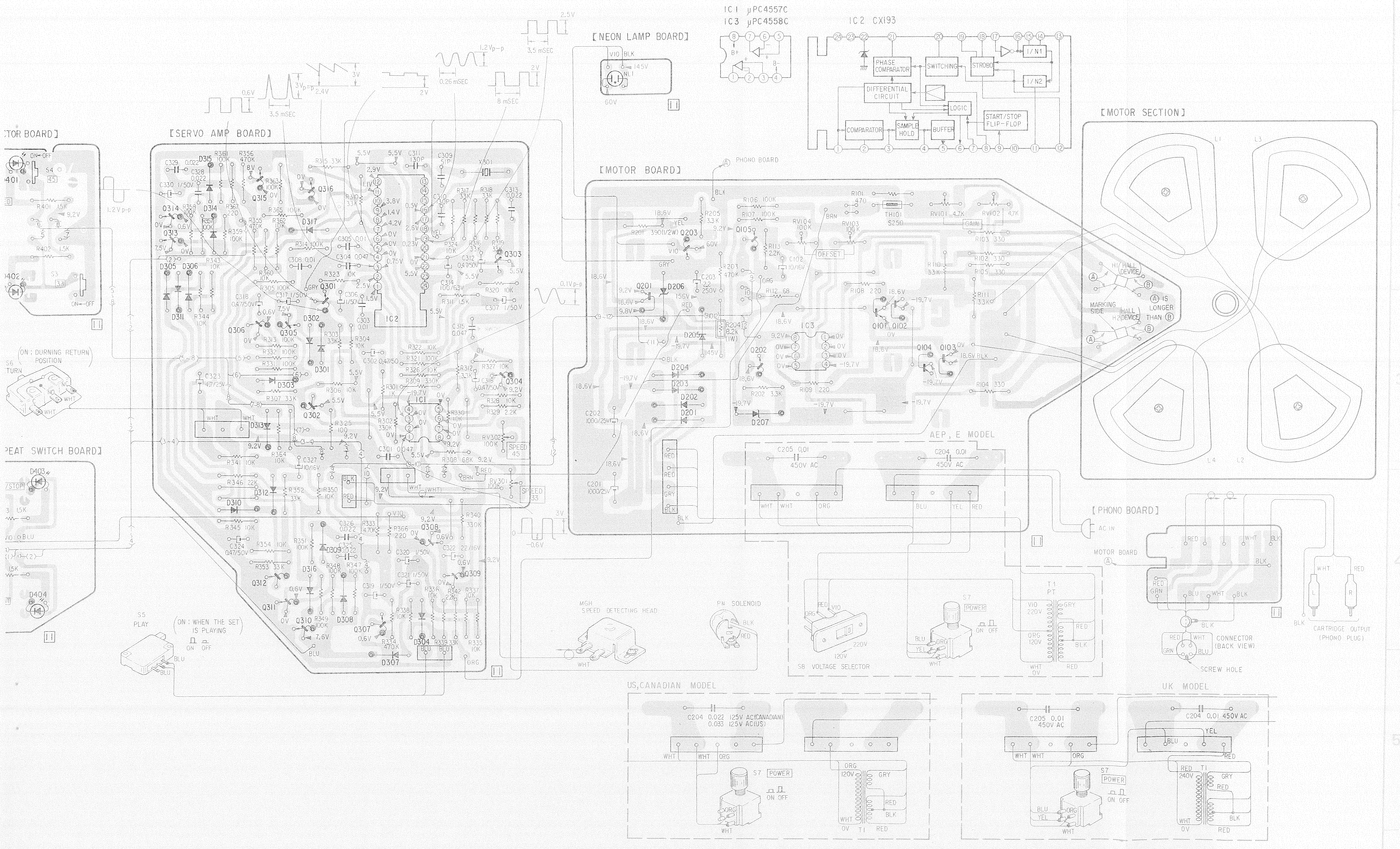

anode
cathode
anode
cathode

Note:

- ○— : parts extracted from the component side.
- ⊡ : nonflammable resistor.
- ▨ : B+ pattern
- ▨ : B– pattern
- Voltages are dc with respect to ground unless otherwise noted.
- Voltage variations may be noted due to normal production tolerances.
- Readings are taken in stop mode with a VOM (20 kΩ/V).
- Waveforms are taken at 33 rpm.

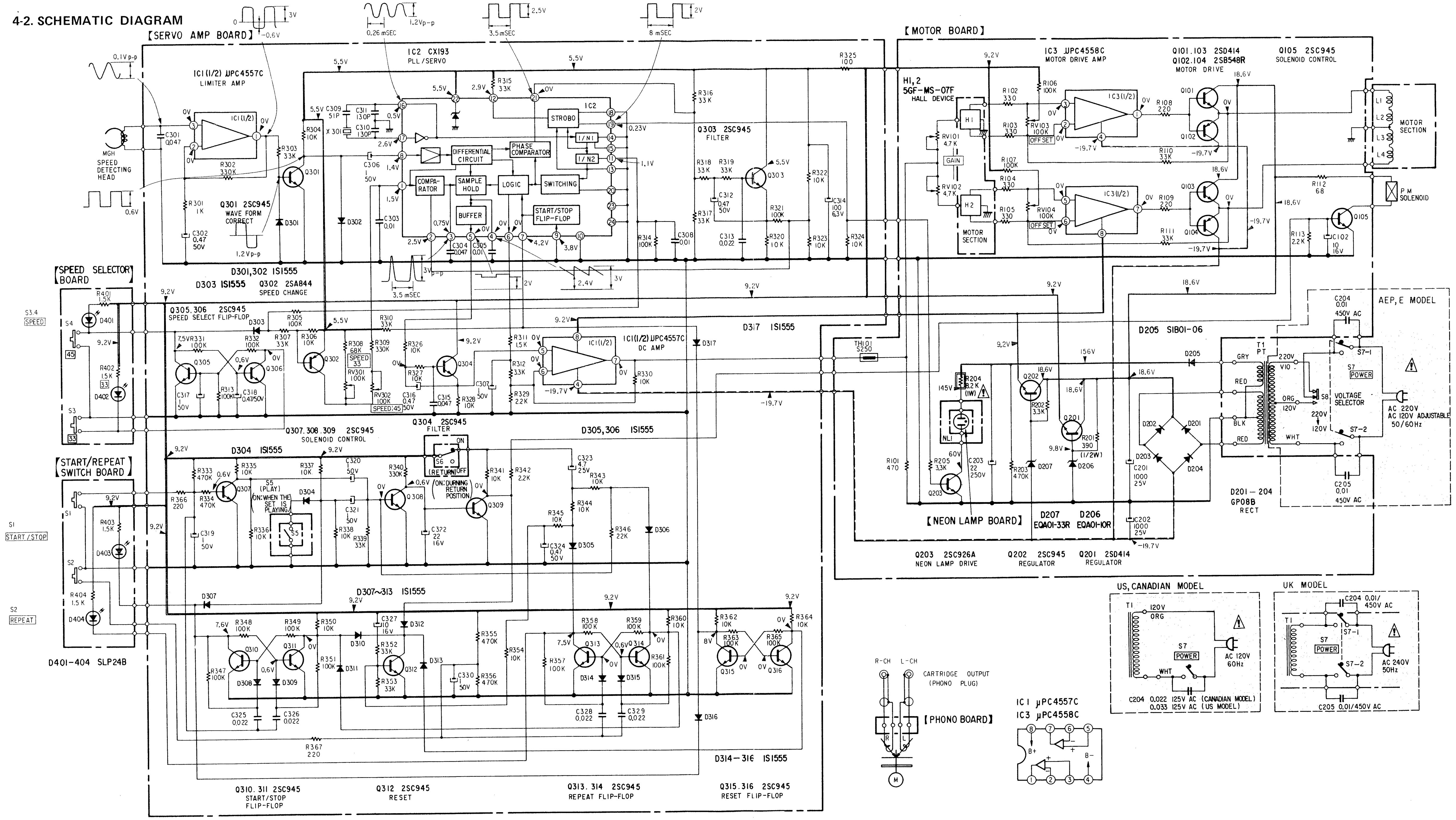

A
B
C
D
1
2
3
4
5
IC
Q
D
[SPEED SELECTOR BOARD]
[SERVO AMP BOARD]
[START/REPEAT SWITCH BOARD]
[NEON LAMP BOARD]
[MOTOR BOARD]
PHONO BOARD
IC1 μPC4557C
IC3 μPC4558C
S3, 4 SPEED
S4 45
S3 33
S6 RETURN
(ON : DURNING RETURN POSITION)
S1 START/STOP
S2 REPEAT
S5 PLAY
(ON : WHEN THE SET IS PLAYING)
IC1
IC2
MGH SPEED DETECTING HEAD
PN SOLENOID
US, CANADIAN MODEL
C204 0.022 125V AC(CANADIAN) 0.033 125V AC(US)
S7 POWER
ON OFF
3,5 mSEC
0.26 mSEC
8 mSEC
1.2Vp-p
0.1Vp-p

	A	B	C	D	E	F	G	H	
		314 313 315 306 305 312	311 310 316 302 301 307 IC2 IC1 308 309	303 304	201 203 105 202 IC3	101 102 104 103			IC Q
	401 403 402 404	305 311 306 315 314 310 313 303 312	317 302 316 301 309 308 307 304	206 204 203	202 201 205 207				D



IC1 μPC4557C
IC3 μPC4558C
IC2 CX193
PHASE COMPARATOR
SWITCHING
STROBO
1/N1
1/N2
DIFFERENTIAL CIRCUIT
LOGIC
COMPARATOR
SAMPLE HOLD
BUFFER
START/STOP FLIP-FLOP
[NEON LAMP BOARD]
[SERVO AMP BOARD]
[MOTOR BOARD]
[MOTOR SECTION]
[PHONO BOARD]
PHONO BOARD
MOTOR BOARD
AC IN
HI HALL DEVICE
H2 HALL DEVICE
MARKING SIDE
Ⓐ IS LONGER THAN Ⓑ
AEP, E MODEL
US, CANADIAN MODEL
UK MODEL
C204 0.022 125V AC(CANADIAN) 0.033 125V AC(US)
C205 0.01 450V AC
C204 0.01 450V AC
S7 POWER
ON OFF
T1 PT
S8 VOLTAGE SELECTOR
MGH SPEED DETECTING HEAD
PM SOLENOID
S5 PLAY
(ON: WHEN THE SET IS PLAYING)
(ON: DURNING RETURN POSITION)
TURN
REPEAT SWITCH BOARD
OR BOARD
CONNECTOR (BACK VIEW)
SCREW HOLE
CARTRIDGE OUTPUT (PHONO PLUG)
RV302 SPEED 45
RV301 SPEED 33
RV101 RV102 GAIN
RV103 OFFSET
3.5 mSEC
0.26 mSEC
8 mSEC
1.2Vp-p
0.1Vp-p
A B C D E F G H
1 2 3 4 5

4-2. SCHEMATIC DIAGRAM


[SERVO AMP BOARD]
IC1(1/2) μPC4557C LIMITER AMP
IC2 CX193 PLL/SERVO
MGH SPEED DETECTING HEAD
Q301 2SC945 WAVE FORM CORRECT
D301,302 IS1555
D303 IS1555
Q302 2SA844 SPEED CHANGE
Q303 2SC945 FILTER
DIFFERENTIAL CIRCUIT
PHASE COMPARATOR
COMPA-RATOR
SAMPLE HOLD
LOGIC
SWITCHING
BUFFER
START/STOP FLIP-FLOP
STROBO
1/N1
1/N2
[SPEED SELECTOR BOARD]
Q305.306 2SC945 SPEED SELECT FLIP-FLOP
IC1(1/2) μPC4557C DC AMP
D317 IS1555
Q304 2SC945 FILTER
Q307.308.309 2SC945 SOLENOID CONTROL
D304 IS1555
D305,306 IS1555
[START/REPEAT SWITCH BOARD]
S5 (PLAY) ON: WHEN THE SET IS PLAYING
S6 (RETURN) ON: DURING RETURN POSITION
D307~313 IS1555
D314–316 IS1555
Q310.311 2SC945 START/STOP FLIP-FLOP
Q312 2SC945 RESET
Q313.314 2SC945 REPEAT FLIP-FLOP
Q315.316 2SC945 RESET FLIP-FLOP
D401–404 SLP24B
S3.4 SPEED
S1 START/STOP
S2 REPEAT
[MOTOR BOARD]
H1,2 5GF-MS-07F HALL DEVICE
IC3 μPC4558C MOTOR DRIVE AMP
Q101.103 2SD414
Q102.104 2SB548R MOTOR DRIVE
Q105 2SC945 SOLENOID CONTROL
MOTOR SECTION
PM SOLENOID
D205 S1B01-06
D201–204 GP08B RECT
AEP,E MODEL
VOLTAGE SELECTOR
AC 220V AC 120V ADJUSTABLE 50/60Hz
[NEON LAMP BOARD]
D207 EQA01-33R
D206 EQA01-10R
Q203 2SC926A NEON LAMP DRIVE
Q202 2SC945 REGULATOR
Q201 2SD414 REGULATOR
US, CANADIAN MODEL
AC 120V 60Hz
C204 0.022 125V AC (CANADIAN MODEL) 0.033 125V AC (US MODEL)
UK MODEL
AC 240V 50Hz
C205 0.01/450V AC
CARTRIDGE OUTPUT (PHONO PLUG)
R-CH L-CH
[PHONO BOARD]
IC1 μPC4557C
IC3 μPC4558C

- Switch

Ref. No	Switch	Position
S1	START/STOP	OFF
S2	REPEAT	OFF
S3	SPEED (33)	OFF
S4	SPEED (45)	OFF
S5	PLAY	OFF
S6	RETURN	OFF
S7	POWER	OFF

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

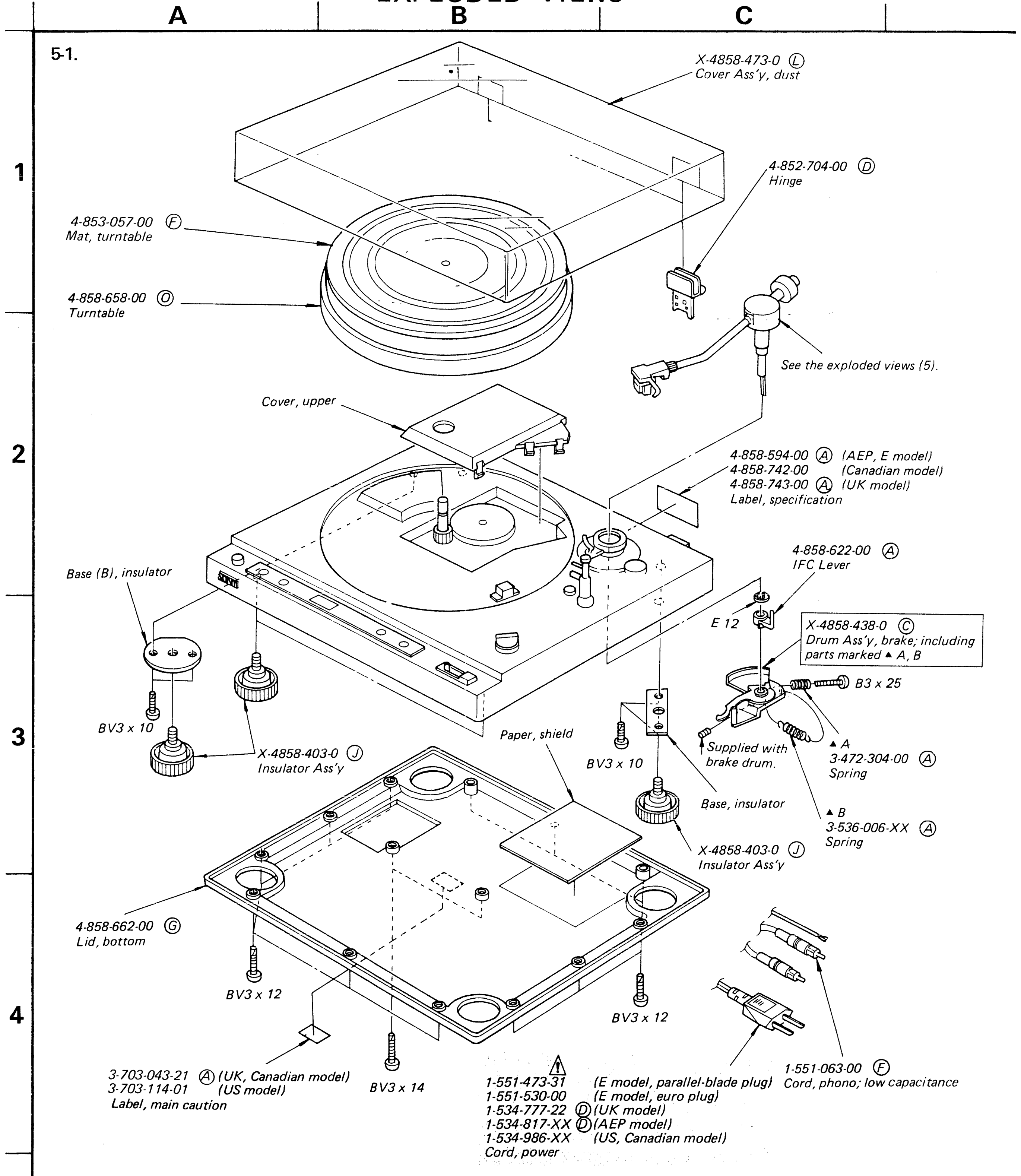
Note: Les composants identifiés par un tramé et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Note:

- All capacitors are in μF unless otherwise noted. pF : μμF 50 WV or less are not indicated except for electrolytics.
- All resistors are in ohms, 1/4 W unless otherwise noted. kΩ : 1000 Ω; MΩ : 1000 kΩ
- ☐ : panel designation.
- ☐ : adjustment for repair.
- Voltages are dc with respect to ground unless otherwise noted.
- Voltage variations may be noted due to normal production tolerances.
- Readings are taken in stop mode with a VOM (20kΩ/V).
- Waveforms are taken at 33 rpm.
- ——— : B+ Bus.
- – – – : B– bus.

SECTION 5

EXPLODED VIEWS

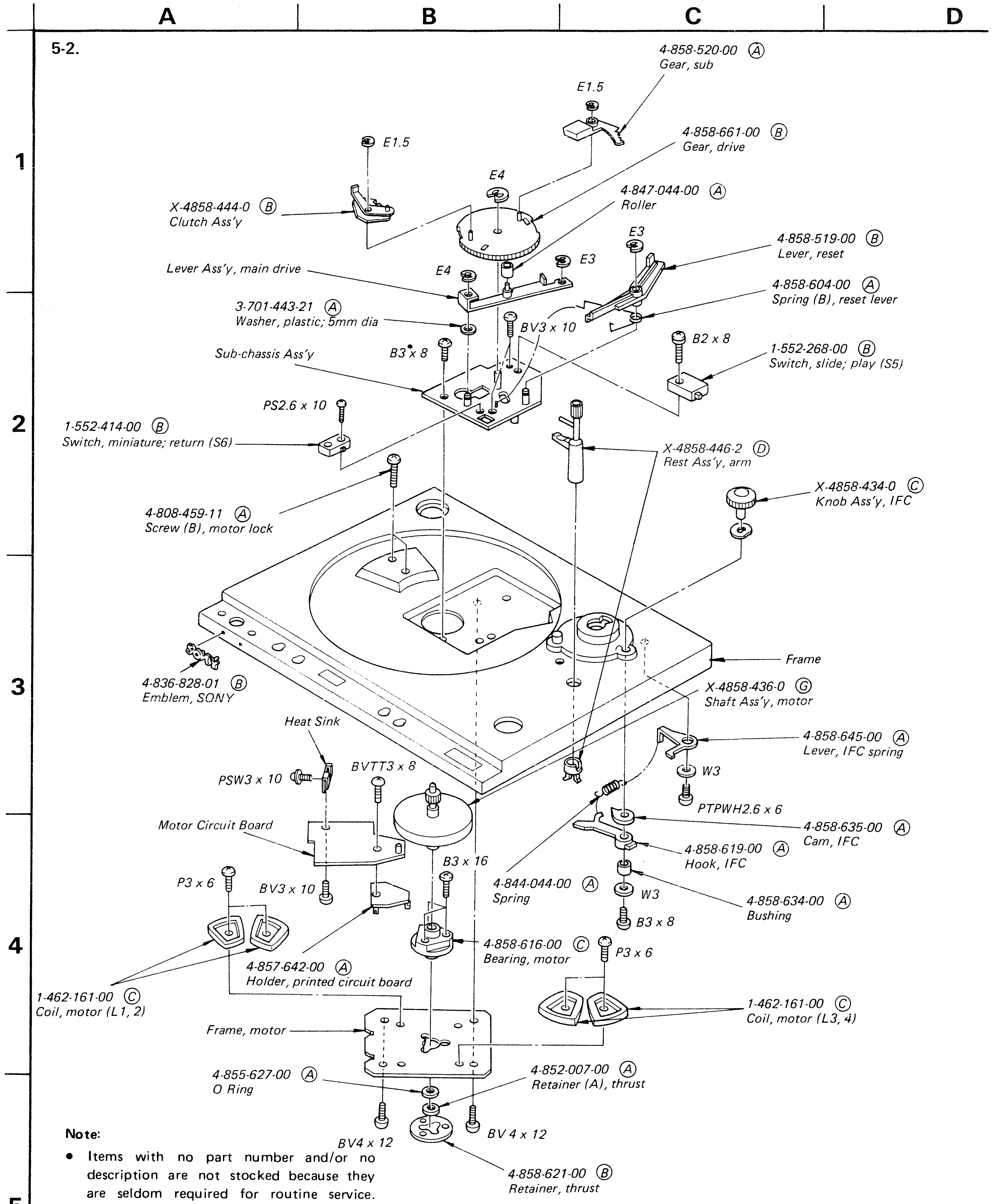

A
B
C
1
2
3
4
5
5-1.
X-4858-473-0 Ⓛ
Cover Ass'y, dust
4-852-704-00 Ⓓ
Hinge
4-853-057-00 Ⓕ
Mat, turntable
4-858-658-00 Ⓓ
Turntable
See the exploded views (5).
Cover, upper
4-858-594-00 Ⓐ (AEP, E model)
4-858-742-00 (Canadian model)
4-858-743-00 Ⓐ (UK model)
Label, specification
SONY
Base (B), insulator
4-858-622-00 Ⓐ
IFC Lever
E 12
X-4858-438-0 Ⓒ
Drum Ass'y, brake; including parts marked ▲ A, B
B3 x 25
BV3 x 10
X-4858-403-0 Ⓙ
Insulator Ass'y
Paper, shield
BV3 x 10
Supplied with brake drum.
▲ A
3-472-304-00 Ⓐ
Spring
Base, insulator
▲ B
3-536-006-XX Ⓐ
Spring
X-4858-403-0 Ⓙ
Insulator Ass'y
4-858-662-00 Ⓖ
Lid, bottom
BV3 x 12
BV3 x 12
3-703-043-21 Ⓐ (UK, Canadian model)
3-703-114-01 (US model)
Label, main caution
BV3 x 14
⚠
1-551-473-31 (E model, parallel-blade plug)
1-551-530-00 (E model, euro plug)
1-534-777-22 Ⓓ (UK model)
1-534-817-XX Ⓓ (AEP model)
1-534-986-XX (US, Canadian model)
Cord, power
1-551-063-00 Ⓕ
Cord, phono; low capacitance

Note:

- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type unless otherwise noted.
  (–) = slotted head
- Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

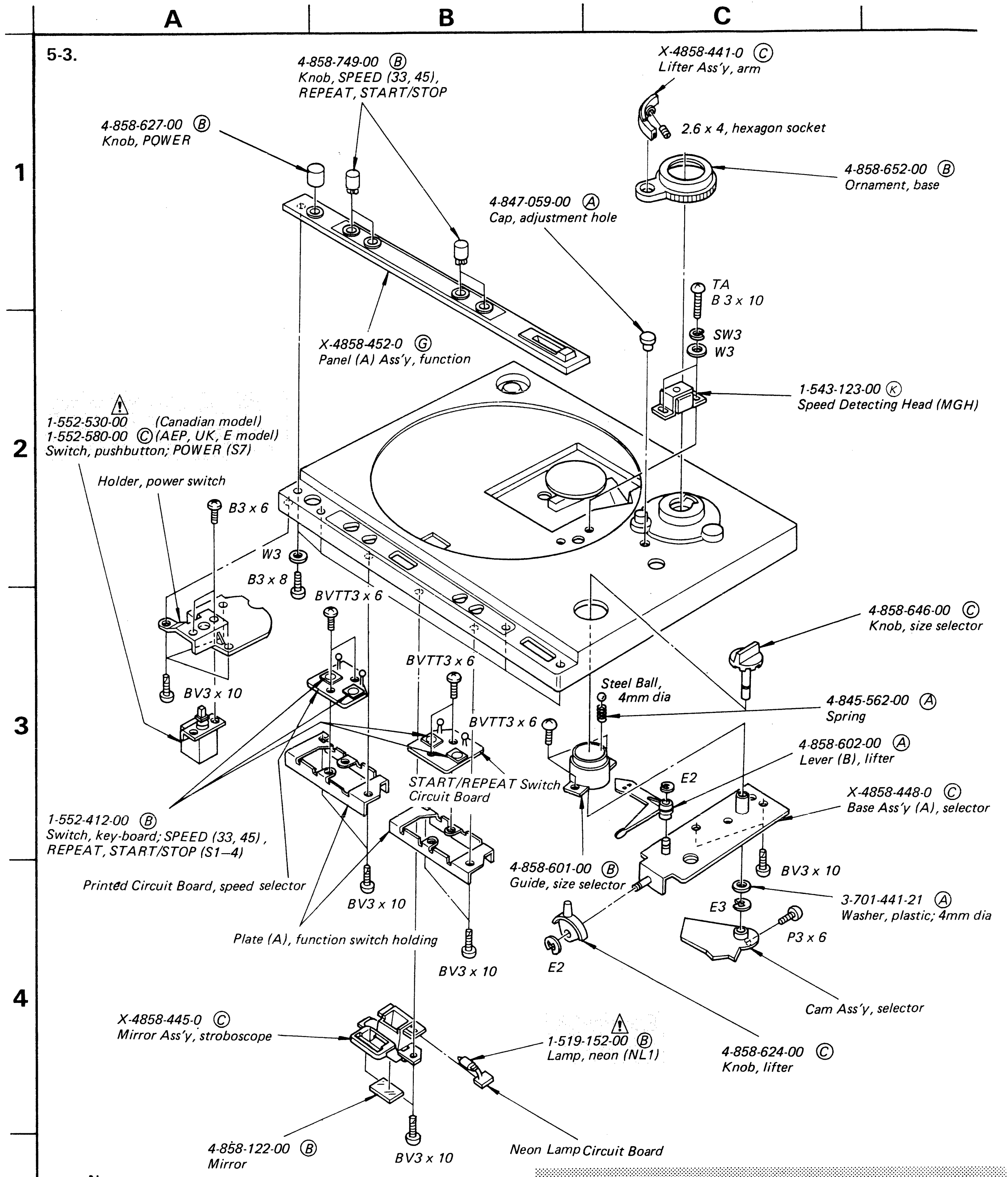
Note: Les composants identifiés par un tramé et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.


A
B
C
D
1
2
3
4
5
5-2.
4-858-520-00 Ⓐ
Gear, sub
E1.5
E1.5
4-858-661-00 Ⓑ
Gear, drive
E4
X-4858-444-0 Ⓑ
Clutch Ass'y
4-847-044-00 Ⓐ
Roller
E3
4-858-519-00 Ⓑ
Lever, reset
Lever Ass'y, main drive
E4
E3
4-858-604-00 Ⓐ
Spring (B), reset lever
3-701-443-21 Ⓐ
Washer, plastic; 5mm dia
BV3 x 10
B3 x 8
B2 x 8
Sub-chassis Ass'y
1-552-268-00 Ⓑ
Switch, slide; play (S5)
PS2.6 x 10
1-552-414-00 Ⓑ
Switch, miniature; return (S6)
X-4858-446-2 Ⓓ
Rest Ass'y, arm
X-4858-434-0 Ⓒ
Knob Ass'y, IFC
4-808-459-11 Ⓐ
Screw (B), motor lock
Frame
4-836-828-01 Ⓑ
Emblem, SONY
X-4858-436-0 Ⓖ
Shaft Ass'y, motor
Heat Sink
4-858-645-00 Ⓐ
Lever, IFC spring
PSW3 x 10
BVTT3 x 8
W3
PTPWH2.6 x 6
Motor Circuit Board
4-858-635-00 Ⓐ
Cam, IFC
B3 x 16
4-858-619-00 Ⓐ
Hook, IFC
P3 x 6
BV3 x 10
4-844-044-00 Ⓐ
Spring
W3
4-858-634-00 Ⓐ
Bushing
B3 x 8
4-858-616-00 Ⓒ
Bearing, motor
P3 x 6
4-857-642-00 Ⓐ
Holder, printed circuit board
1-462-161-00 Ⓒ
Coil, motor (L1, 2)
1-462-161-00 Ⓒ
Coil, motor (L3, 4)
Frame, motor
4-855-627-00 Ⓐ
O Ring
4-852-007-00 Ⓐ
Retainer (A), thrust
BV4 x 12
BV4 x 12
4-858-621-00 Ⓑ
Retainer, thrust

Note:

- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type unless otherwise noted.
  (–) = slotted head
- Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

5-3.


A
B
C
1
2
3
4
5
4-858-749-00 Ⓑ
Knob, SPEED (33, 45),
REPEAT, START/STOP
X-4858-441-0 Ⓒ
Lifter Ass'y, arm
4-858-627-00 Ⓑ
Knob, POWER
2.6 x 4, hexagon socket
4-858-652-00 Ⓑ
Ornament, base
4-847-059-00 Ⓐ
Cap, adjustment hole
TA
B 3 x 10
SW3
W3
X-4858-452-0 Ⓖ
Panel (A) Ass'y, function
1-543-123-00 Ⓚ
Speed Detecting Head (MGH)
⚠
1-552-530-00 (Canadian model)
1-552-580-00 Ⓒ (AEP, UK, E model)
Switch, pushbutton; POWER (S7)
Holder, power switch
B3 x 6
W3
B3 x 8
BVTT3 x 6
4-858-646-00 Ⓒ
Knob, size selector
BVTT3 x 6
BV3 x 10
Steel Ball,
4mm dia
4-845-562-00 Ⓐ
Spring
BVTT3 x 6
4-858-602-00 Ⓐ
Lever (B), lifter
START/REPEAT Switch
Circuit Board
E2
X-4858-448-0 Ⓒ
Base Ass'y (A), selector
1-552-412-00 Ⓑ
Switch, key-board; SPEED (33, 45),
REPEAT, START/STOP (S1–4)
4-858-601-00 Ⓑ
Guide, size selector
BV3 x 10
Printed Circuit Board, speed selector
BV3 x 10
3-701-441-21 Ⓐ
Washer, plastic; 4mm dia
E3
P3 x 6
Plate (A), function switch holding
BV3 x 10
E2
Cam Ass'y, selector
X-4858-445-0 Ⓒ
Mirror Ass'y, stroboscope
⚠
1-519-152-00 Ⓑ
Lamp, neon (NL1)
4-858-624-00 Ⓒ
Knob, lifter
4-858-122-00 Ⓑ
Mirror
BV3 x 10
Neon Lamp Circuit Board

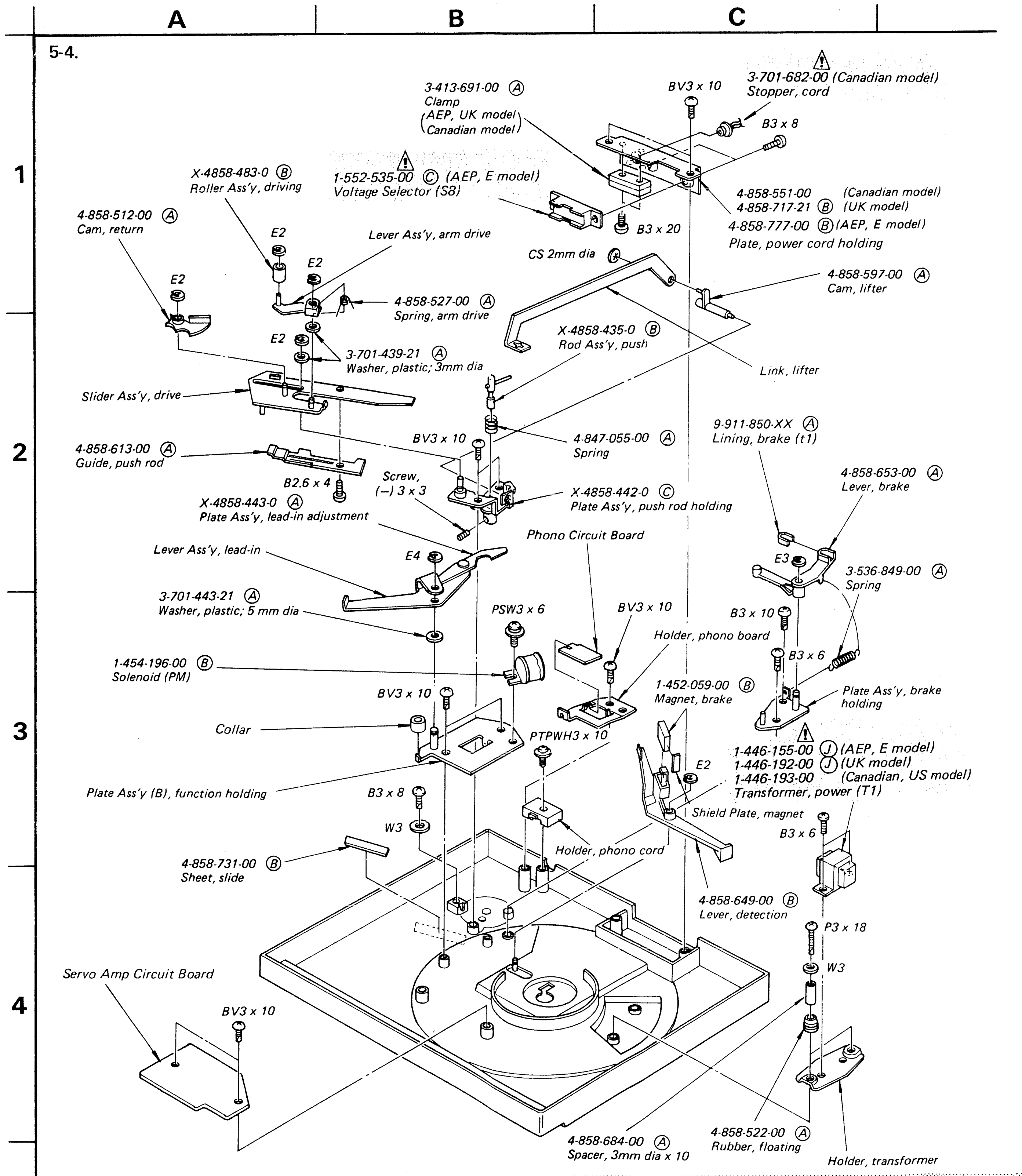
Note:

- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type unless otherwise noted.
  (–) = slotted head
- Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note: Les composants identifiés par un tramé et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

5-4.


A
B
C
1
2
3
4
5
⚠
3-701-682-00 (Canadian model)
Stopper, cord
BV3 x 10
3-413-691-00 Ⓐ
Clamp
(AEP, UK model)
(Canadian model)
B3 x 8
X-4858-483-0 Ⓑ
Roller Ass'y, driving
⚠
1-552-535-00 Ⓒ (AEP, E model)
Voltage Selector (S8)
4-858-551-00 (Canadian model)
4-858-717-21 Ⓑ (UK model)
4-858-777-00 Ⓑ (AEP, E model)
Plate, power cord holding
4-858-512-00 Ⓐ
Cam, return
E2
Lever Ass'y, arm drive
B3 x 20
E2
E2
CS 2mm dia
4-858-597-00 Ⓐ
Cam, lifter
4-858-527-00 Ⓐ
Spring, arm drive
E2
3-701-439-21 Ⓐ
Washer, plastic; 3mm dia
X-4858-435-0 Ⓑ
Rod Ass'y, push
Link, lifter
Slider Ass'y, drive
BV3 x 10
4-847-055-00 Ⓐ
Spring
9-911-850-XX Ⓐ
Lining, brake (t1)
4-858-613-00 Ⓐ
Guide, push rod
B2.6 x 4
Screw,
(–) 3 x 3
X-4858-442-0 Ⓒ
Plate Ass'y, push rod holding
4-858-653-00 Ⓐ
Lever, brake
X-4858-443-0 Ⓐ
Plate Ass'y, lead-in adjustment
Phono Circuit Board
Lever Ass'y, lead-in
E4
E3
3-536-849-00 Ⓐ
Spring
3-701-443-21 Ⓐ
Washer, plastic; 5 mm dia
PSW3 x 6
BV3 x 10
B3 x 10
Holder, phono board
B3 x 6
1-454-196-00 Ⓑ
Solenoid (PM)
1-452-059-00 Ⓑ
Magnet, brake
BV3 x 10
Plate Ass'y, brake
holding
Collar
PTPWH3 x 10
⚠
1-446-155-00 Ⓙ (AEP, E model)
1-446-192-00 Ⓙ (UK model)
1-446-193-00 (Canadian, US model)
Transformer, power (T1)
E2
Plate Ass'y (B), function holding
B3 x 8
Shield Plate, magnet
B3 x 6
W3
Holder, phono cord
4-858-731-00 Ⓑ
Sheet, slide
4-858-649-00 Ⓑ
Lever, detection
P3 x 18
W3
Servo Amp Circuit Board
BV3 x 10
4-858-684-00 Ⓐ
Spacer, 3mm dia x 10
4-858-522-00 Ⓐ
Rubber, floating
Holder, transformer

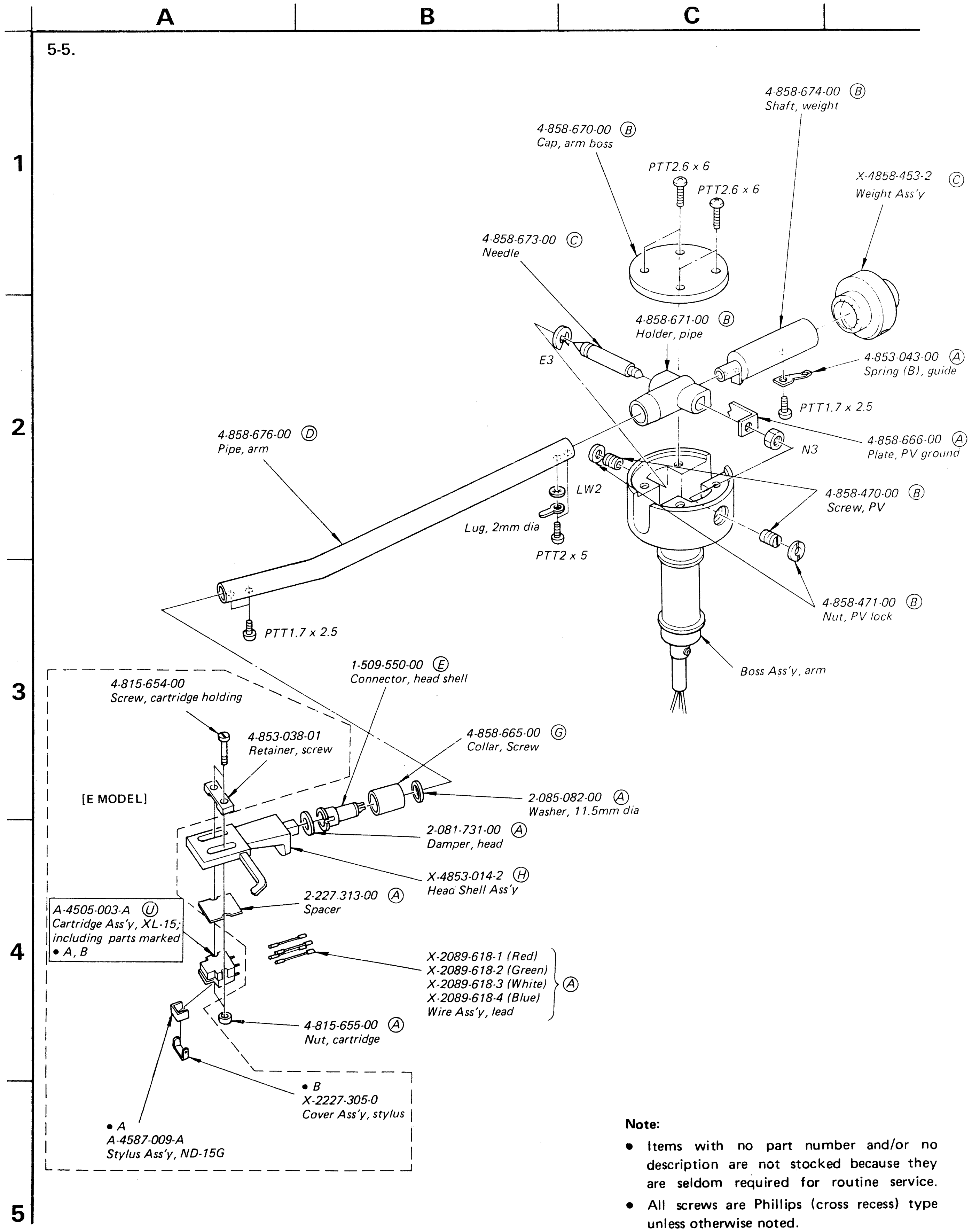
Note:

- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type unless otherwise noted.
  (–) = slotted head
- Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note: Les composants identifiés par un tramé et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

5-5.


A
B
C
1
2
3
4
5
4-858-674-00 Ⓑ
Shaft, weight
4-858-670-00 Ⓑ
Cap, arm boss
PTT2.6 x 6
PTT2.6 x 6
X-4858-453-2 Ⓒ
Weight Ass'y
4-858-673-00 Ⓒ
Needle
4-858-671-00 Ⓑ
Holder, pipe
E3
4-853-043-00 Ⓐ
Spring (B), guide
PTT1.7 x 2.5
4-858-676-00 Ⓓ
Pipe, arm
4-858-666-00 Ⓐ
Plate, PV ground
N3
LW2
4-858-470-00 Ⓑ
Screw, PV
Lug, 2mm dia
PTT2 x 5
4-858-471-00 Ⓑ
Nut, PV lock
PTT1.7 x 2.5
1-509-550-00 Ⓔ
Connector, head shell
Boss Ass'y, arm
4-815-654-00
Screw, cartridge holding
4-853-038-01
Retainer, screw
4-858-665-00 Ⓖ
Collar, Screw
[E MODEL]
2-085-082-00 Ⓐ
Washer, 11.5mm dia
2-081-731-00 Ⓐ
Damper, head
X-4853-014-2 Ⓗ
Head Shell Ass'y
2-227-313-00 Ⓐ
Spacer
A-4505-003-A Ⓤ
Cartridge Ass'y, XL-15;
including parts marked
• A, B
X-2089-618-1 (Red)
X-2089-618-2 (Green)
X-2089-618-3 (White)
X-2089-618-4 (Blue)
Wire Ass'y, lead
Ⓐ
4-815-655-00 Ⓐ
Nut, cartridge
• B
X-2227-305-0
Cover Ass'y, stylus
• A
A-4587-009-A
Stylus Ass'y, ND-15G

Note:

- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type unless otherwise noted.
(–) = slotted head
- Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

SECTION 6

ELECTRICAL PARTS LIST

Note: Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

SEMICONDUCTORS

Transistors

Ref. No.	*Part No.*	*Description*
Q101, 103	8-729-141-43	Ⓑ 2SD414
Q102, 104	8-729-154-83	Ⓑ 2SB548R
⇒Q105	8-729-663-47	Ⓑ 2SC1364
Q201	8-729-141-43	Ⓑ 2SD414
⇒Q202	8-729-663-47	Ⓑ 2SC1364
Q203	8-720-950-03	Ⓒ 2SC926A
⇒Q301	8-729-663-47	Ⓑ 2SC1364
⇒Q302	8-727-788-00	Ⓑ 2SA678
⇒Q303–316	8-729-663-47	Ⓑ 2SC1364

ICs

Ref. No.	*Part No.*	*Description*
IC1	8-759-145-57	Ⓒ μPC4557C
IC2	8-751-930-00	Ⓚ CX193
IC3	8-759-145-58	Ⓓ μPC4558C

Diodes

Ref. No.	*Part No.*	*Description*
⇒D201–204	8-719-200-02	Ⓑ 10E2
⇒D205	8-719-210-06	Ⓑ 10D6
⇒D206	8-719-931-10	Ⓑ EQB01-10
⇒D207	8-719-931-33	Ⓑ EQB01-33
D301–317	8-719-815-55	Ⓐ 1S1555
D401–404	8-719-900-24	Ⓑ SLP24B
H1, 2	8-719-905-07	Ⓒ 5GF-MS-07F

COILS AND TRANSFORMERS

Ref. No.	*Part No.*	*Description*
L1–4	1-462-161-00	Ⓒ Coil, motor
T1	⚠1-446-155-00	Ⓙ Transformer, power (AEP, E model)
T1	⚠1-446-192-00	Ⓙ Transformer, power (UK model)
T1	⚠1-446-193-00	Transformer, power (US, Canadian model)

CAPACITORS

All capacitors are in μF and ceramic unless otherwise noted. 50 WV or less are not indicated except for electrolytics.
p: μμF, elect: electrolyitc

Ref. No.	*Part No.*	*Description*
C102	1-121-651-00	Ⓐ 10 16 V elect
C201, 202	1-121-388-00	Ⓑ 1000 25 V elect
C203	1-123-027-00	Ⓑ 2.2 250 V elect
C204	⚠1-108-750-00	0.033 125 V mylar (US model)
C204	⚠1-130-098-00	0.022 125VAC film (Canadian model)
C204, 205	⚠1-115-148-00	Ⓒ 0.01 450VAC paper (AEP, UK, E model)
C301	1-101-925-00	Ⓐ 0.047
C302	1-121-726-00	Ⓐ 0.47 50 V elect
C303	1-108-804-00	Ⓐ 0.01 mylar
C304	1-108-845-00	Ⓐ 0.047 mylar
C305	1-108-804-00	Ⓐ 0.01 mylar
C306, 307	1-121-391-00	Ⓐ 1 50 V elect
C308	1-101-923-00	Ⓐ 0.01
C309	1-102-491-00	Ⓐ 51 p
C310, 311	1-101-081-00	Ⓐ 130 p
C312	1-121-726-00	Ⓐ 0.47 50 V elect
C313	1-161-034-00	Ⓐ 0.022
C314	1-121-413-00	Ⓐ 100 6.3 V elect
C315	1-161-036-00	Ⓐ 0.047
C316	1-121-951-00	Ⓐ 0.47 50 V elect
C317	1-121-391-00	Ⓐ 1 50 V elect
C318	1-121-726-00	Ⓐ 0.47 50 V elect
C319–321	1-121-391-00	Ⓐ 1 50 V elect
C322	1-121-479-00	Ⓐ 22 16 V elect
C323	1-121-395-00	Ⓐ 4.7 25 V elect
C324	1-121-726-00	Ⓐ 0.47 50 V elect
C325, 326	1-101-924-00	Ⓐ 0.022
C327	1-121-651-00	Ⓐ 10 16 V elect
C328, 329	1-101-924-00	Ⓐ 0.022
C330	1-121-391-00	Ⓐ 1 50 V elect

⇒: Due to standardization, interchangeable replacements may be substituted for parts specified in the diagrams.

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

RESISTORS

All resistors are in ohms. Common ¼ W carbon resistors are omitted. Refer to the list on the page 28 for their part numbers.

Ref. No.	*Part No.*	*Description*
R201	1-244-863-00	Ⓐ 390 ½ W carbon
R204	⚠1-213-154-00	Ⓑ 8.2 k 1 W metal oxide (nonflammable)
RV101, 102	1-224-633-00	Ⓐ 4.7 k, adjustable; gain
RV103, 104	1-224-637-00	Ⓐ 100 k, adjustable; offset
RV301, 302	1-224-637-00	Ⓐ 100 k, adjustable; speed (33, 45)

Note: Les composants identifiés par un tramé et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Note: Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

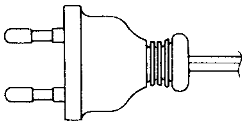
Ref. No.	*Part No.*	*Description*
		SWITCHES
S1–4	1-552-412-00	Ⓑ Key-Board, START/STOP, REPEAT, SPEED (33, 45)
S5	1-552-268-00	Ⓑ Slide, PLAY
S6	1-552-414-00	Ⓑ Miniature, RETURN
S7	⚠1-552-530-00	Pushbutton, POWER (US, Canadian model)
	⚠1-552-580-00	Ⓒ Pushbutton, POWER (AEP, UK, E model)
S8	⚠1-552-535-00	Ⓒ Voltage Selector (AEP, E model)
		MISCELLANEOUS
MGH	1-543-123-00	Ⓚ Speed Detecting Head
NL1	⚠1-519-152-00	Ⓑ Lamp, neon
PM	1-454-196-00	Ⓑ Solenoid
TH101	1-800-195-00	Ⓐ Thermistor, S-250
X301	1-527-380-00	Ⓓ Crystal
	1-452-059-00	Ⓑ Magnet, Brake
	1-509-550-00	Ⓔ Connector, head shell
	⚠1-534-777-72	Ⓓ Cord, power (UK model)
	⚠1-534-817-XX	Ⓓ Cord, power (AEP model)
	⚠1-534-986-XX	Cord, power (US, Canadian model)
	1-551-063-00	Ⓕ Cord, phono; low capacitance
	⚠1-551-473-31	Cord, power, parallel-blade plug (E model)
	⚠1-551-530-00	Cord, power; euro-plug (E model)

ACCESSORIES AND PACKING MATERIALS

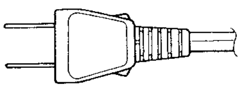
Part No.	*Description*
X-4853-006-0	Ⓔ Screw Ass'y, cartridge (AEP, UK, US, Canadian model)
including:	
2-011-002-00	Bag, polyethylene
2-056-532-01	Ⓑ Screw (A), cartridge
2-224-081-00	Ⓑ Screw (E), cartridge
2-224-081-11	Ⓑ Screw (E), cartridge
3-770-625-11	Ⓓ Manual, instruction (AEP, UK, E model)
3-770-625-21	Manual, instruction (US model)
3-770-625-21 3-794-319-31	Manual, instruction (Canadian model)
3-701-614-00	Ⓐ Bag, polyethylene
3-701-616-00	Ⓐ Bag, polyethylene, shell and main weight
3-701-630-00	Ⓐ Bag, polyethylene
3-701-634-00	Ⓐ Bag, polyethylene, turntable
3-701-806-00	Ⓐ Adaptor, 45 rpm
3-701-891-00	Ⓐ Label, main caution (Canadian, UK model)
3-703-114-01	Label, main caution (US model)
3-793-395-00	Ⓑ Gauge, tracking error check
3-794-265-00	Leaflet, caution (E model)
4-847-314-00	Ⓒ Bag, polyethylene
4-848-002-00	Ⓐ Cushion, arm pipe
4-857-655-00	Ⓐ Plate (A), protection
4-858-407-00	Ⓐ Adjustor, drop-point
4-858-587-00	Ⓐ Bag, accessory
4-858-593-00	Ⓐ Cushion, weight
4-858-738-00	Ⓔ Carton
4-858-740-00	Ⓒ Cushion, right
4-858-741-00	Ⓒ Cushion, left
4-858-748-00	Ⓒ Box, accessory

–Power Cord (E model)–

euro-plug
(1-551-530-00)



parallel-blade plug
(1-551-473-31)



Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note: Les composants identifiés par un tramé et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

1/4 WATT CARBON RESISTORS Ⓐ

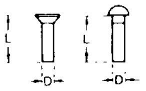
Note: Circled letter Ⓐ is applicable to European models only.

Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.
1.0	1-246-401-00	10	1-246-425-00	100	1-246-449-00	1.0k	1-246-473-00	10k	1-246-497-00	100k	1-246-521-00	1.0M	1-246-545-00
1.1	1-246-402-00	11	1-246-426-00	110	1-246-450-00	1.1k	1-246-474-00	11k	1-246-498-00	110k	1-246-522-00	1.1M	1-210-814-00
1.2	1-246-403-00	12	1-246-427-00	120	1-246-451-00	1.2k	1-246-475-00	12k	1-246-499-00	120k	1-246-523-00	1.2M	1-210-815-00
1.3	1-246-404-00	13	1-246-428-00	130	1-246-452-00	1.3k	1-246-576-00	13k	1-246-500-00	130k	1-246-524-00	1.3M	1-210-816-00
1.5	1-246-405-00	15	1-246-429-00	150	1-246-453-00	1.5k	1-246-577-00	15k	1-246-501-00	150k	1-246-525-00	1.5M	1-210-817-00
1.6	1-246-406-00	16	1-246-430-00	160	1-246-454-00	1.6k	1-246-578-00	16k	1-246-502-00	160k	1-246-526-00	1.6M	1-210-818-00
1.8	1-246-407-00	18	1-246-431-00	180	1-246-455-00	1.8k	1-246-579-00	18k	1-246-503-00	180k	1-246-527-00	1.8M	1-210-819-00
2.0	1-246-408-00	20	1-246-432-00	200	1-246-456-00	2.0k	1-246-580-00	20k	1-246-504-00	200k	1-246-528-00	2.0M	1-210-820-00
2.2	1-246-409-00	22	1-246-433-00	220	1-246-457-00	2.2k	1-246-581-00	22k	1-246-505-00	220k	1-246-529-00	2.2M	1-210-821-00
2.4	1-246-410-00	24	1-246-434-00	240	1-246-458-00	2.4k	1-246-582-00	24k	1-246-506-00	240k	1-246-530-00	2.4M	1-244-754-00
2.7	1-246-411-00	27	1-246-435-00	270	1-246-459-00	2.7k	1-246-583-00	27k	1-246-507-00	270k	1-246-531-00	2.7M	1-244-755-00
3.0	1-246-412-00	30	1-246-436-00	300	1-246-460-00	3.0k	1-246-584-00	30k	1-246-508-00	300k	1-246-532-00	3.0M	1-244-756-00
3.3	1-246-413-00	33	1-246-437-00	330	1-246-461-00	3.3k	1-246-585-00	33k	1-246-509-00	330k	1-246-533-00	3.3M	1-244-757-00
3.6	1-246-414-00	36	1-246-438-00	360	1-246-462-00	3.6k	1-246-586-00	36k	1-246-510-00	360k	1-246-534-00	3.6M	1-244-758-00
3.9	1-246-415-00	39	1-246-439-00	390	1-246-463-00	3.9k	1-246-587-00	39k	1-246-511-00	390k	1-246-535-00	3.9M	1-244-759-00
4.3	1-246-416-00	43	1-246-440-00	430	1-246-464-00	4.3k	1-246-488-00	43k	1-246-512-00	430k	1-246-536-00	4.3M	1-244-760-00
4.7	1-246-417-00	47	1-246-441-00	470	1-246-465-00	4.7k	1-246-489-00	47k	1-246-513-00	470k	1-246-537-00	4.7M	1-244-761-00
5.1	1-246-418-00	51	1-246-442-00	510	1-246-466-00	5.1k	1-246-490-00	51k	1-246-514-00	510k	1-246-538-00	5.1M	1-244-762-00
5.6	1-246-419-00	56	1-246-443-00	560	1-246-467-00	5.6k	1-246-491-00	56k	1-246-515-00	560k	1-246-539-00		
6.2	1-246-420-00	62	1-246-444-00	620	1-246-468-00	6.2k	1-246-492-00	62k	1-246-516-00	620k	1-246-540-00		
6.8	1-246-421-00	68	1-246-445-00	680	1-246-469-00	6.8k	1-246-493-00	68k	1-246-517-00	680k	1-246-541-00		
7.5	1-246-422-00	75	1-246-446-00	750	1-246-470-00	7.5k	1-246-494-00	75k	1-246-518-00	750k	1-246-542-00		
8.2	1-246-423-00	82	1-246-447-00	820	1-246-471-00	8.2k	1-246-495-00	82k	1-246-519-00	820k	1-246-543-00		
9.1	1-246-424-00	91	1-246-448-00	910	1-246-472-00	9.1k	1-246-496-00	91k	1-246-520-00	910k	1-246-544-00		

HARDWARE NOMENCLATURE

Screw: – P 3 x 10

L: Length in mm
D: Diameter in mm
Type of head
Indicated slotted-head only.
Unless otherwise indicated, it means cross-recessed head (Phillips type).

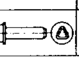
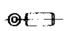
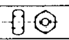
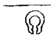


Nut, Washer, Retaining ring:

N 3

Diameter of usable screw or shaft
Reference designation

Reference Designation	Shape	Description	Remarks
		SCREWS	
P		pan-head screw	binding-head (B) screw for replacement
PWH		pan-head screw with washer face	binding-head (B) screw and flat washer for replacement
PS PSP		pan-head screw with spring washer	binding-head (B) screw and spring washer for replacement
PSW PSPW		pan-head screw with spring and flat washers	binding-head (B) screw and spring and flat washers for replacement
R		round-head screw	binding-head (B) screw for replacement
K		flat-countersunk-head screw	
RK		oval-countersunk-head screw	
B		binding-head screw	
T		truss-head screw	binding-head (B) screw for replacement
F		flat-fillister-head screw	
RF		fillister-head screw	
BV		braizer-head screw	

Reference Designation	Shape	Description	Remarks
		SELF-TAPPING SCREWS	
TA		self-tapping screw	ex: TA, P 3 x 10
PTP		pan-head self-tapping screw	binding-head self-tapping (TA, B) screw for replacement
PTPWH		pan-head self-tapping screw with washer face	binding-head self tapping (TA, B) screw and flat washer for replacement
PTTWH		pan-head thread-rolling screw with washer face	binding-head (B) screw and flat washer for replacement
		SET SCREWS	
SC		set screw	
SC		hexagon-socket set screw	ex: SC 2.6 x 4, hexagon socket
		NUT	
N		nut	
		WASHERS	
W		flat washer	
SW		spring washer	
LW		internal-tooth lock washer	ex: LW3, internal
LW		external-tooth lock washer	ex: LW3, external
		RETAINING RINGS	
E		retaining ring	
G		grip-type retaining ring	

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